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WANTED—BACK NUMBERS OF THE ENGINEERING AND MINING JOURNAL.

A liberal price will be paid, in cash or subscriptions, for the following numbers of the ENGINEERING AND MINING JOURNAL:

Year.	Vol.	Numbers Wanted.	Year.	Vol.	Numbers Wanted.
1872	XIV.	1 to 18 inclusive.	1875	XIX.	14, 15.
1874	XVIII.	4, 11.	1875	XX.	7, 12, 22, 23.

Address this office.

A NEW GAS COMPANY FOR JERSEY CITY.

Notwithstanding the iron-clad law passed in the interest of the old gas companies in New Jersey last year, a new company, which, we believe, will use the Lowe gas, has been organized for Jersey City, and a very large proportion of the capital has already been paid up in cash. The old companies, which so persistently oppose any innovation that threatens by cheapening manufacture to make their expensive plant useless, are likely to have a fine opportunity to make a comparison of effectiveness and relative economy of the different systems here within reach of the great "Head-center" himself. Since Mahomet would not go to the mountain, the mountain has come to Mahomet—or *vice versa*.

What the public wants is better and cheaper gas, and this new aggressive step of the Lowe people promises to give this to our neighbors. It is safe to assume that, if successful there, New York will not be long without it. Mains could readily be laid across the North River, and holders erected on this side that would supply the city, without the heavy charges occasioned by the establishment of works in the heart of the city itself.

THE COAL PROPERTY OF THE LEHIGH AND WILKES-BARRE COAL COMPANY.

In another column we give an abstract of the statement made by a committee appointed by the Lehigh & Wilkes-Barre Coal Company consolidated mortgage bondholders. From this interesting report we learn that the estimate of "two persons of experience" places the value of the company's coal lands, improvements, and personal property at mines at $14,000,000. The report finds assets amounting to $15,569,760, and, after wiping out the entire capital stock of the company, the actual liabilities aggregate $21,050,036. In addition to this the company has borrowed from the Central Railroad of New Jersey, to secure its bills payable and demand loans, securities with a par value of $4,672,000. If we should accept the estimates of the gentlemen "of experience," and assume the securities held by the company to have the value expressed on the books, we would find a depreciation of the capital represented to have been invested of 47 per cent.

As much of the coal property appearing in the assets of the company "as held in fee" is heavily mortgaged with purchase money bonds, and suits are now pending to forfeit some of the leases on which the company has expended large sums of money for improvements and royalties paid in advance, it would seem as if the wreck is even more complete than this discouraging report indicates.

The statement of this committee that the company owns in fee 14,000 acres of coal lands, and leases 9,500 acres of coal-bearing property, we think, needs much more than bare non-expert assertion to be of much value. What the public, the bondholders and stockholders want—if these latter still take any interest whatever in the company—is to know from the examinations of qualified experts what amount of the company's property is actually underlaid by workable coal; how much coal it contains, and when the same would probably become available. Without such a report it is absolutely impossible to form any approximate idea of the value of the property, and the guesses of "two experienced" gentlemen, that the coal lands of the company are worth $10,000,000, are quite worthless.

The Receivers have in Mr. JOSEPH HARRIS, their mining engineer, a gentleman whose professional ability and integrity are universally recognized, and whose opinion, whether he make the examinations alone, or, *pro forma*, is assisted by some well-qualified engineer not connected with the company, would be accepted as entirely conclusive. We therefore suggest to the Receivers the necessity of giving such an authoritative statement of the value of the property, if they would have their representations bear weight. Surely those interested in the securities of this company have had quite enough of these general indefinite statements, and we should consider it an insult to their intelligence to be again offered the average of the guesses of "two experienced persons" instead of definite expert knowledge, as a basis for estimating the value of their property. Each previous guess that they have invested on has proved disastrous, and common prudence would suggest the necessity for something more definite now.

It would be matter of great regret if the valuable property of the company should be scattered through the suits now pending and we trust some arrangement may be arrived at by which it can be held together; that is, so much of it as is not subject to leases too burthensome to be of use to the company. With returning prosperity the company may yet be put in a position to pay dividends on a reasonable capitalization.

DISHONESTY THE CAUSE OF OUR HARD TIMES.

In our issue of the 4th of August we spoke, at some length, of corruption and dishonesty as the principal causes of the present industrial prostration of the country, and of the strike which has occasioned well-founded anxiety for some time past. The warm indorsement which our remarks have gained shows that many others, well informed, have recognized also this deep-seated evil as a chief cause of our calamities.

As showing the appreciation of our effort to open the eyes of all honest men to the facts, we may quote from a letter received from Pennsylvania—a State in which "rings" have always found a congenial soil—and from a gentleman who has had vast opportunity for knowing of, without participating in, these dishonest practices:

"TO THE EDITOR—SIR: Your editorial in the ENGINEERING AND MINING JOURNAL of August 4th, on 'The Cause of Strikes,' hits not only the nail on the head, but on the very center of the head: '*Rem acu tetigisti.*' The title of the article might as well have been: 'On the causes which prevent the resumption of business and cause strikes.'

"The infernal and ignorant management of most, not to say nearly all, of our corporations, has so undermined all faith and confidence that it is impossible to induce capital to touch anything, even when it be shown to be as safe as a first bond and mortgage on improved real estate. I am glad to see—I think it marks an epoch—that somebody sees the point and has courage to speak out.

"I lately made a trip into the western part of Pennsylvania, and heard many different plans and notions to help us out of our deplorable condition; one suggested Tom Scott's Southern Railroad scheme to be 'favored' by Congress; another wants more Tariff; another more Free Trade; another more Greenbacks; another wanted some other equally silly or useless thing; but nobody that I spoke to wanted the roguery of corporations stopped, or seemed to think it important that people should apply more brain, more industry, and better processes in their business. F."

There is no preacher half so effective as "hard times" in leading men into the paths of virtue and honesty. Or to quote the forcible, epigrammatic style of a friend engaged in the iron trade, "When pig iron is $45 a ton, we have no use for Moody and Sankey; but let it go to $20, and their meetings are crowded." Without fully indorsing these sentiments, it is certain that, while stockholders are receiving large dividends, they rarely look closely into the management of their companies, and allow, without question, many demoralizing, if not actually dishonest, practices to take root. In that stage, it is almost useless for any one to point out the fact that their able managers, who have earned them such satisfactory dividends, have grown suddenly rich on small salaries, and that it is common report—easily verified—that some of them are in the habit of receiving from 3 to 20 per cent. commission on all the purchases made by the company. When dividends cease, either through inability to borrow money to keep them up, or through any other cause, stockholders begin to open their eyes and ears, and are more ready to stop the leaks that have all but sunk the ship. We have, therefore, some faint hope that the honest in the land will raise their voices through the Press, and insist upon honesty and integrity as first conditions in the administration of all offices, whether public, corporate, or private, and will institute such guarantees and checks as will exclude dishonest or demoralizing practices. If stockholders would insist—as they have a perfect right to do—on examining the books of their companies, and ascertaining, as they can almost always do outside of the company's office, the manner in which their mines, works, and roads are managed, they can readily find abuses of such magnitude that the marvel is not why the companies do not pay dividends, but why they were not bankrupted long ago.

A scarcely less convincing, though not so agreeable, testimony to the directness with which, to use our correspondent's expression, "we hit the nail on the head," comes to us in notifications from the post-office that the ENGINEERING AND MINING JOURNAL has been "refused" by some of the companies which apparently do not relish our call for the exercise of honesty in corporate management.

We shall probably have more to say on this subject at another time.

HIGH WAGES AND LOW EARNINGS.

The declarations constantly made by the miners in several of our coal regions that they cannot earn sufficient to maintain their families, are, in the main, well founded; as are also the statements by the companies that the rates of wages are higher than in any other industry requiring equal skill. The explanation is simply that the men have not steady work, and the men themselves, as well as the companies and the public, are the sufferers by this enforced idleness for one-half the time. As a case in point we may cite the Cumberland coal field. A writer in the Cumberland *News* of a recent date says:

"There are said to be 2,600 miners in this region. Now, if you allow work to extend over a period of 40 weeks, and give each miner 4 tons to dig per day, making $480 per annum each, out of which to pay rent and the doctor, tools and oil, food and clothing, and other necessaries, it is requisite that there should be mined 2,496,000 tons of coal. This amount has only once been sent from this region in a single year (1873)."

Last year the output of the Cumberland region was but 1,800,000 tons, or 692 tons per man, and this year the production bids fair not to exceed 1,700,000 tons, which, at 50 cents per ton; would leave the yearly earnings per man as only $327, or in 300 working days only $1.09 per day. But instead of 2·6 tons per man, miners in that region can mine eight tons per day, or with ease can average six tons per day. If we take 250 days' (10 months) work in the year, and a production of 1,700,000 tons for this year, we see that 1,133 miners will suffice to do the work; and at 40 cents per ton their earnings would amount to $600 a year, or $2 per day for all the working days in the year. It is quite evident, then, that if the companies were to guarantee steady employment at 40 cents a ton; the miners would be better off, the companies would be able to regain their lost markets, and the public and every industry depending on cheap coal would be benefited.

True, all the men now in the field could not be employed, but there is no justice in taxing the whole country, and particularly the working classes (for every depression in business and curtailment of production eventually comes upon these), to maintain in idleness one-half of the miners in the Cumberland region.

The remedy for this condition of things is for the companies to offer a low rate of wages, say 40 cents per ton, with a guarantee of steady, full work for 10 months in the year. Naturally, they will employ on guarantee but the number necessary for their minimum output, and all additional men must be paid considerably higher wages—say 50 cents per ton—but when the output will not employ all, then these will be left idle. If we mistake not, the men having the option would prefer the guaranteed steady work at the lower rate to the half or two-thirds time at the higher rate. The objection would, of course, come from the surplus miners, who, having nothing to do, would have to leave the region. But we repeat, the country is too poor to be able to support any large number of able-bodied men in idleness, or, which is the same thing, to pay such prices for their coal as will enable the miners to live, even poorly, when working only one-half or one-third of the time. The same remarks apply to many other mining regions than the Cumberland.

The pressure of contracts seems to have decided the companies to grant an advance to 55 cents per ton to the miners in the Cumberland, but this will be but a temporary matter. As soon as they can accumulate coal sufficient for pressing engagements, the companies will stop work, and the increase in price, combined with the certainty of future strikes and suspensions before getting the cost of mining down to where it must come to hold the trade, is constantly diminishing the business and output of the Cumberland mines. A few more victories for the men, in the way of increase in rates of wages, will close the Cumberland mines altogether, and thus kill the goose that lays the golden eggs. We are not in favor of diminishing the earnings of the miners, but it is more steady work, not higher rates of wages, that will increase these. Every increase in the cost of marketing this coal diminishes the quantity that can be sold, and reverts at once, though, perhaps, not apparently to them, on the miners themselves.

SALE OF THE AMERICAN MINE, SUNSHINE, COLO.

Staff Correspondence of the Engineering and Mining Journal.

It is stated in the papers, and evidently with great pride, that the American Mine at Sunshine, Colo., has been sold to a Mr. Angle, of New York, for $212 500, and by him sold to the American Consolidated Gold and Silver Mining Company, of New York, for $1,000,000.

Whether or not these figures are correct, we have no positive means of ascertaining at present. A sale has certainly been made; for when the paper published in the immediate vicinity of the mine—scarcely a thousand feet from its shaft—prints such a statement with all the glory of head lines and italics, it is likely to be founded on fact; and though, of course, the private figures of the sale differ from those given to the world, they are likely to bear a certain proportion to the true ones.

For ourselves, we regret the sale at the figures named, and believe that the mine will not stand up under such a heavy capitalization any better than did the Caribou. It is probable, however, that not more than 40 per cent. was cash, which would reduce the sale to a basis on which the mine could stand. The American is a good vein, has yielded remarkably well, if allowance is made for the handling it has received, and is as likely to be productive in the future as in the past. It is now 330 feet deep, and has been recently provided with some semi-respectable machinery.

It would seem as if the public in that section of Colorado ought to have learned by this time the danger and injury to a mine and mining district incurred by saddling a really good property with an enormous capital, and would know enough not to join in the rejoicings. It has taken three years to recover the ground lost at Caribou by the $3,000,000 sale there, and unless very much less is expected of the American than is indicated by the figures of its sale, Sunshine District is likely to pass through a similar experience. In nearly all new camps the growth, prosperity, and business health of the town depend largely upon the fortunes of the "big mine." The little ones keep along, it is true, and in time the first great mine finds itself with many rivals, if the district is really a good one; but in its early days the outside public invariably know and speak of a camp through the medium of its most productive vein. In Sunshine the American has occupied this enviable position, and though the mine has had but few advantages in the way of capital and management, it has paid handsomely.

It is, therefore, more of a shame to see so excellent a property loaded to the water's edge with a burden it is unprepared to carry. Half a million would have been a fair figure. The sellers would probably have received just as much cash as now, and the mine would not have been in the position of a strong man fairly strapped to the ground with his burden.

A CURIOUS INVENTION.

Staff Correspondence of the Engineering and Mining Journal.

The *Stock Report* of San Francisco speaks of a new invention lately patented on the Coast, which is intended to supplant the now costly assayer, and drive that arrogant individual into some other and less remunerative business. We have heard from another source that the patentee was a few years ago engaged in mining, and, in the pursuit of that occupation paid out a good many hundred dollars to the local assayer, who kept alternately encouraging and discouraging him by good and bad assays, until, in disgust, he threw up his mine, abandoned the district, and, vowing vengeance on the whole tribe of analytical chemists, made an oath to spend the balance of his life in seeking for a means to undermine their business.

This he now professes to have done. The new machine is provided with a compass, clinometer, horizontal arc, level, and telescope. These are for the ordinary operations of underground surveying. Inside is the more complicated assaying mechanism. The machine, says the *Stock Report*, on being placed against a piece of ore, will immediately indicate the coin value per ton. Laying it against a stope, the solid contents and average assay are instantly registered, and, by moving it around into different parts of the mine, the cubical contents of the vein and the value per fathom are immediately and infallibly indicated. But these are only a few of the virtues of the wonderful machine. It will foretell stock speculations, prophesy of assessments, tell tales on defaulting cashiers and treasurers, trip up cunning superintendents, and perform a vast number of odd and serviceable jobs, hitherto accomplished only by the tedious and circuitous methods of science, or through the equally uncertain pathways of the law. According to our Coast exchange, these invaluable machines are now for sale at the excessively low price of $125,000 each, or by the dozen $1,400,000.

BOOKS RECEIVED.

Those marked * will be reviewed in subsequent numbers of the JOURNAL.

* MANUAL OF THE RAILROADS OF THE UNITED STATES, 1877-78. HENRY V. POOR. New York. Price $5.
* CENSUS OF MASSACHUSETTS, 1875. Vols. II. and III. By CARROLL D. WRIGHT, Chief of the Bureau of Statistics of Labor. Boston. 1877.
* A PRACTICAL TREATISE ON WATER-SUPPLY ENGINEERING: RELATING TO THE HYDROLOGY, HYDRODYNAMICS, AND PRACTICAL CONSTRUCTION OF WATER WORKS IN NORTH AMERICA. With numerous tables and illustrations. By J. T. FANNING, C. E. pp. 619. New York: D. Van Nostrand.

THE MAGNETISM OF IRON VESSELS, WITH A SHORT TREATISE ON TERRESTRIAL MAGNETISM. By FAIRMAN ROGERS. New York: D. Van Nostrand. Price 50 cents.

* THEORY OF TRANSVERSE STRAINS, AND ITS APPLICATION IN THE CONSTRUCTION OF BUILDINGS. By R. G. HATFIELD. New York: JOHN WILEY & SONS. pp. 630.
* NEW CONSTRUCTIONS IN GRAPHICAL STATICS. By HENRY T. EDDY, C. E., Ph., D. New York: D. Van Nostrand. Price $1.50.
* AN ELEMENTARY COURSE OF CIVIL ENGINEERING. By J. B. WHEELER, Prof. of Civil and Military Engineering, U. S. Military Academy, West Point, New York. New York: John Wiley & Sons. Price $4.
* A TREATISE OF ENGINEERING CONSTRUCTION IN TUNNELING, BRIDGING, CANAL AND ROAD BUILDING, ETC. By J. E. SHIELDS, C. E. Illustrated. New York: D. Van Nostrand. Price $1.50.

ANALES DEL MINISTERIO DE FOMENTO DE LA REPUBLICA MEXICANA.

PROGRAMM DER KONIGLICHEN RHEINISCH-WESTFALISCHEN POLYTECHNISCHEN SCHULE ZU AACHEN FUR DEN CURSUS 1877-78.

PROCEEDINGS OF THE AMERICAN PHILOSOPHICAL SOCIETY, HELD AT PHILADELPHIA, FOR PROMOTING USEFUL KNOWLEDGE. JANUARY, 1876, TO MAY, 1877.

TREASURY DEPARTMENT. QUARTERLY REPORT OF THE CHIEF OF THE BUREAU OF STATISTICS, FOR THREE MONTHS, ENDING MARCH 31, 1877. Washington, D.C.

RAILROAD EMPLOYES IN FRANCE. AN ACCOUNT OF THE ORGANIZATION OF RAILROAD SERVICE ON A FRENCH RAILROAD. Pamphlet. New York: *Railroad Gazette.*

This is a most useful little pamphlet. Like all those published by the *Railroad Gazette* it contains much information of practical value to our railroad managers and employes. Indeed, it will well repay perusal by owners and employers at mines and industrial works, as well as railroads, for many of its suggestions could be transplanted to this country with advantage.

FINANCIAL CONDITION OF THE LEHIGH AND WILKES-BARRE COAL COMPANY.

The committee appointed at a meeting of the consolidated mortgage bondholders of this company, held in New York, on the 19th day of March, 1877, made a report in June, which gives many facts and figures not previously known to the general public. The following is condensed from the lengthy statement presented by the committee:

The assets and liabilities, as shown by the company's books, are as follows:

Assets.			
Coal Lands, cost—			
Wilkes-Barre Division...	$12,359,362		
Honey Brook Division....	3,845,160		
Wilkes-Barre town lots...	113,584		
	$16,318,106		
Mining improvements, machinery, etc., cost—			
Wilkes-Barre Division....	$4,041,373		
Honey Brook Division....	135,852		
Lehigh Division.....	1,148,769		
Railroad and equipment..	437,377		
	$5,763,371		
Yards and stations.....	437,446		
Personal property (equip't)			
At Wilkes-Barre mines....	1,073,603		
At Honey Brook mines....	112,621		
At Lehigh mines.....	571,426		
Yards and stations.....	63,694		
Boats and barges.....	219,972		
Stocks, bonds, etc.—			
Plymouth Water Co's stock	15,000		
Crystal Spring Water Co's stock.....	56,100		
Oronoco Ex. & M. Co.'s stock.....	500		
Hosack Hall stock.....	500		
Bonds and mortgages.....	19,125		
Eastern Transportation line bonds.....	19,318		
	$110,543		
Securities hypothecated—			
25 Lance Colliery bonds...	125,000		
80 Crystal Spring Water Co.'s bonds.....	80,000		
1,338 L. & W. B. Con. bonds, 1900.....	1,338,000		
Providence wharf mortg..	130,000		
Bills receivable.....	25,073		
	$1,698,073		
Royalty.....	1,453,952		
Sinking fund loan, 1894.....	612		
Cash, balance on hand.....	28,565		
Coal stock on hand, 173,718 16-20	483,045		
Bills and accounts receivable	587,535		
Deficit—			
Balance profit and loss.....	$2,265,816		
Less Insurance fund	$92,285		
Un claimed balances for wages, etc..	8,055—100,341	—2,165,474	
	$31,088,042		

Liabilities.		
Capital Stock	$10,000,000	
Less held by company.....	1,300,000	
	$8,700,000	
Funded debt—		
Jamison mortgage.....	$20,000	
Wadhams mortgage (old).	95,400	
Lehigh Nav. loan, 1897....	500,000	
" " 1894....	771,000	
Honey Brook loan, 1881...	300,000	
Wilkes-Barre loan, 1894...	20,000	
Total prior to sterling loan	$1,706,400	
Sterling loan, 1900.....	1,680,000	
E. P. Ross mortgage	125,000	
N. J. Coal Co. mortgage bonds $24,000 since paid.	244,000	
Wadhams 2d purchase....	606,389	
Total prior to consol. loan	$4,361,789	
Lehigh & Wilkes-Barre consolidated loan, due 1900.....	$11,500,000	
Less held by Receivers....	415,000	
	$11,085,000	
On property acquired since execution of consolidated loan of 1900—		
Lance Colliery bonds mortgage $150,000, of which $25,000 held by Receivers	$125,000	
Geo. Loveland, gdn mtge..	3,500	
Post & Petty	77,871	
Charles Parish	60,000	
O. L. Hughes.....	6,250	
Rickard & Pringle.....	10,218	
	$282,839	
Liens on property other than coal lands—		
E. P. Fiske, Brooklyn yard mortgage	4,500	
Providence wharf mortg. (pledged as collateral)...	130,000	
	$134,500	
Lehigh Coal & Nav. Co.—		
Due on canal boats, payable out of earnings.....	$25,033	
Royalties account, etc....	194,207	
	$219,240	
Royalty	32,474	
Bills payable.....	2,697,670	
Demand loans.....	1,079,480	
Vouchers.....	302,652	
Pay rolls.....	367,698	
Central RR. Co. of N. J....	1,470,132	
Boatmen for wages.....	16,737	
Accrued int. on funded debt.	216,258	
Accounts payable, taxes, etc.	121,567	
	$31,088,042	

In addition to the above liabilities, it appears that the Lehigh & Wilkes-Barre Coal Company has borrowed from the Central Railroad Company of New Jersey the following securities, which are hypothecated to secure its bills payable and demand loans:

Lehigh & Wilkes-Barre consolidated mortgage bonds.....	$3,070,000
Central of New Jersey " 10-year loan" bonds	1,302,000
Central of New Jersey consolidated mortgage bonds	300,000

The Receivers of the L. & W. Coal Company state the floating debt, on the 12th day of February, 1877, when they took possession, as $6,282,621.

The Receivers also report available assets turned over to them by the company of a value of $806,427.

There had been paid by Receivers as preferred claims, by order of the Court, up to May 1, 1877, $441,130.

By direction of the Court, the Receivers have authority to issue $300,000 of debentures, bearing 6 per cent. interest, for the payment of preferred claims, which are to have the same lien upon the property as the claims to the payment of which they are applied.

Of these debentures, there had been issued up to May 1 $156,000, and of ordinary certificates $20,000.

INTEREST AND PURCHASE MONEY.

The annual interest on funded debt, prior to the consolidated bonds, and payments of installments of purchase money are as follows:

Total annual interest charges.....	$293,992
Rentals, exclusive of L. Coal & N. Company's lands.....	296,789
Rentals of Lehigh Coal & Navigation Company's lands.....	500,000
Total annual interest, charges and rentals.....	$1,090,781
Installments on lands purchased, past-due and accruing during 1877.....	718,787

Of the floating debt of the company, the sum of $3,134,980 of its demand loans and bills payable is secured by collateral borrowed from the Central Railroad Company of New Jersey, as stated above, and by the hypothecation of $1,338,000 Lehigh & Wilkes-Barre Coal Company's consolidated bonds, and other bonds and mortgages upon its real estate not covered by the consolidated mortgage.

It will be noticed that the coal lands and the improvements and personal property connected therewith are borne upon the company's books at a very high cost. The lands were purchased and the improvements made at a period of great inflation of values, and, with a view of arriving at some approximate estimate of their present value, the land and improvements have been carefully appraised by two persons of experience, and the average of their estimates is here given for your information. It will be understood, however, that the values given are only approximate:

Coal lands valued at.....	$10,000,000
Improvements and personal property at mines connected therewith...	4,000,000
Total estimated value of lands and improvements and personal property.....	$14,000,000

The properties purporting to be covered by the consolidated mortgage consist of about 14,000 acres of coal lands owned by the company in fee simple, 9,500 acres of coal lands held under lease, 20,000 acres of timber and other lands owned in fee simple, and 2,475 acres of timber and other lands held under lease, together with all the improvements made upon the same.

All the mines are now in excellent order, and with a fair demand for coal should send to market at least four millions of tons of coal annually.

LEASES.

The leaseholds of the company comprise twenty different and separate tracts of coal lands, the annual rentals of which, in the form of minimum royalties, amount to the sum of $796,789, the minimum annual rental or royalty upon the lands leased from the Lehigh Coal & Navigation Company alone being $500,000. Upon its leased properties the company has expended large sums for improvements, and for the personal property necessary to the working of the mines, as well as large sums for advanced royalties. It has been suggested that some of these leased properties could be surrendered to the lessors with advantage, and that, in regard to others, the leases should be revised and modified. In case of an abandonment or surrender of leased lands, or forfeiture of the leases through failure to pay the rental, the improvements and advanced royalties would be lost to the company, and unavailable as a security to the consolidated mortgage bondholders.

ON THE ESTIMATION OF MANGANESE IN SPIEGELEISEN AND FERRO-MANGANESE.

By Sergius Kern, St. Petersburg.

Spiegeleisen and ferro-manganese are at present much used in the manufacture of steels. A great many analyses of such kind are made in laboratories of iron and steel works; very often slags from Siemens-Martin furnaces are also tested for manganese, in order to accurately ascertain at any stage of the operation the proper state of the metallic bath of the furnace.

The following method, communicated by me to the Russian Chemical Society on the 7th of April, 1877, may be for technical applications strongly recommended: 0·05 grm. of the spiegeleisen or ferro-manganese, in powder, is dissolved in 20 to 25 c.c. of aqua regia; the solution is evaporated to dryness, and the resulting mass is re-dissolved in a mixture of 10 c.c. of hydrochloric acid and 15 c.c. of water. The residue, consisting of silica, is filtered off. Iron and manganese are next precipitated, in the form of hydrates, by ammonia: this mixture is concentrated and poured into a platinum crucible, and evaporated into dryness. The dry mass is placed in a weighed tube of hard glass, heat is applied, and at the same time a current of dry hydrogen is passed through the tube; the following reaction takes place:

$$Fe_2(OH)_6 + Mn_2(OH)_6 + 8H = Fe_2 + 2MnO + 10H_2O.$$

When the mass turns greenish, instead of hydrogen a current of dry chlorine is passed, which transforms the metallic iron into a volatile compound, ferric chloride (Fe_2Cl_6): the chlorine is passed for about 30 to 40 minutes; when the iron is volatilized, a free current of air is passed for about one hour: during this last operation the tube must also be heated by a Bunsen burner. The substance in the tube burns brownish, and mangano-manganic oxide is formed (Mn_3O_4). The tube in a dry state is secondly weighed, and the difference in the weights of the empty tube and the same tube containing Mn_3O_4 will show the quantity of mangano-manganic oxide in the specimen analyzed. As this oxide contains 72·05 per cent. of manganese, the percentage of manganese in the sample is easily calculated.

Ten analyses were executed by this process on samples in which the manganese was firstly estimated by the well-known Eggertz bromine process. The experiments proved that the difference in the estimation of manganese in the ordinary way and by the above-mentioned process varied between 0·04 and 0·01 per cent. These results show that the process may be safely used in technical and metallurgical applications.

At first sight the new process seems to be very complicated in execution, but practice proved that the work is executed by this method far more quickly and easily than by any other analytical methods.

Some experiments were made in order to simplify the above-described process; they are not yet finished, but altogether it may be found useful to give a short notice of them.

If finely-powdered ferro-manganese is ignited with ammonium-chloride in a high crucible with a metallic cover, the ferric chloride obtained by the reaction,

$$6NH_4Cl + Fe_2 = Fe_2Cl_6 + 6NH_3 + 3H_2,$$

is volatilized, and condenses in the form of small crystals on the cold metallic surface of the crucible-cover. The cover is gently put off, and the contents of the crucible are dissolved in aqua regia; silica is filtered away; the filtrate is evaporated to dryness in a platinum crucible, which is next strongly heated in the presence of air; the resulting mangano-manganic oxide is weighed, and the percentage is calculated as ordinarily. This process is far more easily executed than the process just mentioned. The analyses which are now in execution will show the accurateness of this analytical method.—*Chemical News.*

MINERAL WEALTH OF MOROCCO.—In a paper recently read at the Society of Arts, Mr. A. Leared said the mining industry, which is at present systematically discouraged, might be prosecuted with great advantage in Morocco. The southern provinces are especially rich in minerals. The mountains which separate Sus from Draa abound in iron, and fifty or sixty miles southwest of Terudant iron ore of a very superior quality, used for making gun barrels, is found. In the same ridge of the Atlas Mountains are several mines of copper, combined with gold, and also rich silver mines. Lead, sulphur, and saltpetre are found to the east of Terudant. Antimony and lead are also found in Sus. This does not exhaust the list of mines of which the Atlas is so productive. Possibly, in the districts near the seat of power, mining might be carried on by European capital and skill, by special permission of the Sultan. But in Sus and the southern districts the attempt would be hopeless until life and property become secure.

HYDRAULIC MINING IN CALIFORNIA.*

By Aug. J. Bowie, Jr., A. B., Mining Engineer.

(*Continued from page* 108.)

TOPOGRAPHY OF THE COUNTRY.

When the topography of the country admits of unlimited fall, the grade or incline upon which the sluices are set should be regulated by the character of the gravel to be moved. Where the wash is coarse and cemented, requiring blasting, or where there is much pipe-clay, a heavy grade is requisite. Strongly cemented gravel requires falls or drops to break it up. To prevent the loss of gold, grizzlies† and undercurrents are used to relieve the sluices of the finer material containing gold already detached and being carried forward by a strong stream and heavy grade.

Experience so far has led to the adoption, in most localities, of what is called a six inch grade, meaning six inches to the box twelve feet long, or say 4 per cent. grade. In some places, where large quantities of pipe-clay are hydraulicked, nine and twelve inch‡ grade to the box is used (6 to 8 per cent.), whilst elsewhere, on account of natural obstacles encountered, a 1½ per cent. grade, or 2½ to 3 inches per box of sixteen feet, is used.

LIGHT GRAVEL.

Light gravel can be moved on an easier grade and with less water than heavy gravel, but when a 4 per cent. grade can be obtained it is desirable, even with the former, as it lessens the labor of handling rocks. Moreover, in view of the fact that light gravel is generally poor in gold, this deficiency can only be made up by washing quantity. On the other hand, coarse gravel demands from 4 to 7 per cent. grades, and a large proportionate amount of water.

HEAVY GRAVEL.

In washing heavy gravel, the water in the sluices should be deep enough (10 to 12 inches) to cover the largest boulders which would be ordinarily sent down, whilst light gravel requires the water to run in sufficient force to carry the rocks washed through the sluice, and to be in only sufficient volume to prevent the packing of black and heavy sand. The best results are obtained with shallow streams on light grades. If too much water is used, by superincumbent pressure the sand drops and packs the riffles.

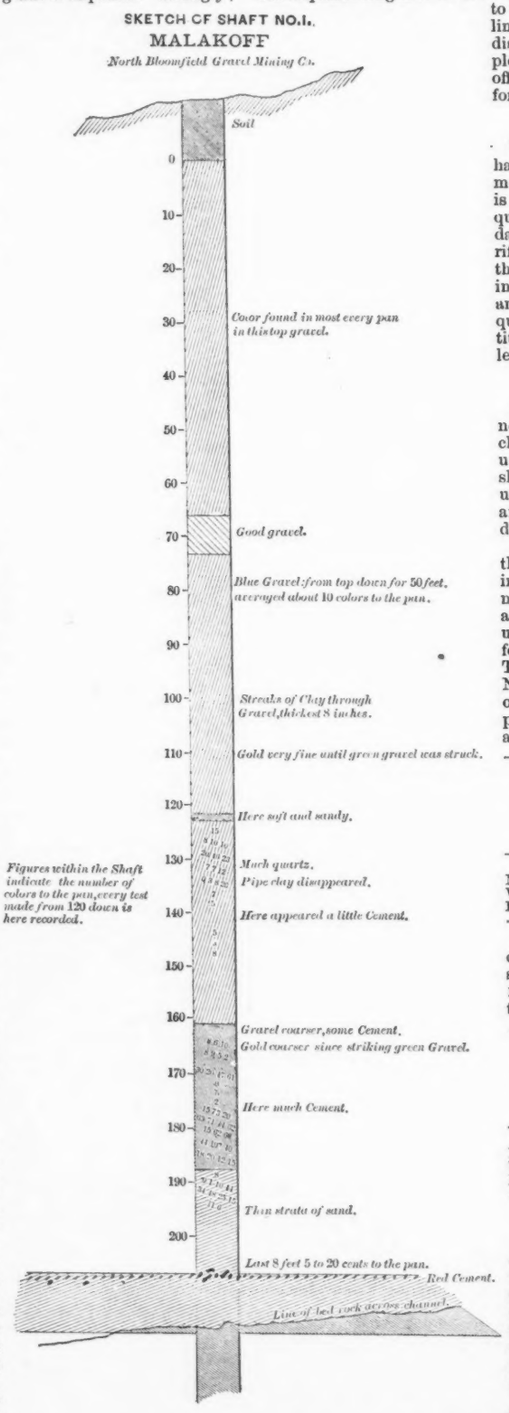
SETTING SLUICES AND THEIR CONSTRUCTION.

In setting sluices, a straight line is the most desirable one to adopt, and where curves occur, the outer side of the box is slightly raised, in order to cause a more general distribution of the materials over the riffles.

Sluices are made of 1½ inch plank, toughened and grooved, resting on sills 4 x 6 inches. The posts are 4 x 3 inch scantling. The size of the sluice§ is regulated by the grade, character of the gravel, and quantity of water to be used. A sluice six feet wide and thirty-six inches deep, on a 4 or 5 per cent. grade, will suffice for running 3,000 to 3,500 miner's inches‖ of water. One four feet wide, thirty inches deep, on a four inch grade to sixteen foot boxes, will suffice for 1,200 to 1,500 inches of water, and on a 4 per cent. grade it is large enough for 2,000 inches. A sluice three feet wide and thirty inches deep, with a 1½ per cent. grade, is ample for 1,000 to 1,200 inches.

RIFFLES.

Square blocks, 8 to 12 inches deep, arranged with spaces of 1 to 1½ inches between each cross row, called riffles, are used to line the bottom of the sluices. They are held in position by small boards 1½ x 6 inches, fastened crosswise on the bottom between the rows by means of headless nails, and made secure by a cleat 1½ x 3 inches, nailed longitudinally on top of the blocks on both sides of the sluice. In many localities round stones are used for riffles instead of blocks, and where heavy cement** is hydraulicked, they are considered preferable on account of their cheapness. At Smartsville it is claimed that experience has proven that they serve fully as well as the blocks, and are cheaper. It must, however, be stated that they are more costly to handle, as more time is required to clean up and repave the sluices. In some sections of the State longitudinal riffles are preferred, *i. e.*, riffles made of scantling placed lengthwise in the sluice. It is frequently the case to find the several kinds of riffles used in long sluices. Where the banks contain many large boulders, as at the Paragon Mine, a different style of riffle has been introduced. The riffles are made of 6 inch scantling, 1½ inches wide, 8 feet long, separated by blocks 1½ inches wide, and an iron bar 1½ inches wide, 1 inch deep, and 8 feet long, is fastened on top of each scantling. The grade of these sluices is 18 inches per 12 foot box, and the width of sluice is 44 inches.



LENGTH OF THE SLUICE.

The requisite length of the sluice is determined by the character of the material to be washed, the idea being to construct the line sufficiently long to insure the most complete disintegration of the detritus by affording ample surface for the grinding of the material, and offering under such conditions the best facilities for the gold to settle in the riffles.

CHANGING THE SLUICES.

When work commences, the sluices are run half a day in order to pack them. A few moments before the quicksilver is added, the water is run clear, and they are then charged. More quicksilver is added during the second and third days, the quantity being increased until the riffles hold the mercury at the surface. During the washings, the sluices are repeatedly examined, and recharged once or twice a day. The amount subsequently added is regulated by the quicksilver exposed to view, and the whole quantity required is more or less contingent on the length of the run.

LOSS OF QUICKSILVER.

A loss of quicksilver in hydraulic mining cannot be avoided, the amount depending on the character of the gravel washed, quantity of water used, the grade, length, and condition of the sluices, and on the number of days run. The use of a long line of sluices, kept in good order, and the employment of undercurrents, tend to diminish it.

The aggregate amount of quicksilver lost at the La Grange Hydraulic Company's mines during a period of two and one-half years in running six claims 1,520 days†† (24 hours), washing and moving 2,275,967 cubic yards of gravel, and using 1,533,728 inches of water (2,159 cubic feet each), amounted to 553.75 lb. quicksilver. The North Bloomfield claims for the year ending November 3, 1875, used 464,600 miner's inches of water‡‡, and 9,649 lb. of quicksilver were employed in the sluices. The loss of quicksilver at the respective claims was as follows :

Name of Claim.	Miner's inches used.	Length of Sluice.	Loss of Quicksilver	Per cent.
		Feet.	Lb.	
No. 8	386,972	1,800	900	11
Woodward	51,550	600	217	25
Eisenbeck	26,000	400	125	25

The losses at the Woodward and Eisenbeck claims are attributed to old and poor sluices and steep grade. For the year ending October 31, 1876, the loss of quicksilver at the above mentioned claims was as follows ;

Name of Claim.	Miner's inches used.	Length of Sluice.	Loss of Quicksilver	Per cent.
		Feet.	Lb.	
No. 8	700,000	1,800	2,251	
Woodward	30,000	600	123	
Eisenbeck	56,200	400	182	

THE LOSS OF GOLD.

The loss of quicksilver carries with it an idea of a loss in gold, but it is practicably impossible to determine to what extent the former entails the latter. There are many conflicting ideas on the subject as to the amount of fine floured and rust gold lost in hydraulic mining, but in properly constructed sluices the already known appliances, when used, save all that can at present be economically and profitably caught.

In substantiation of this assertion can be cited the work done at Gardner's Point during the last four years. The number of inches of water used at this claim during this period is not known. The number of cubic yards of gravel moved has been approximated from the best obtainable data and an inspection of the property. From 1872–74 inclusive, about 148,000 cubic yards of dirt were moved. In 1875 the claim was only run fourteen days full time. This year (1876) 40,000 cubic yards of gravel and 260,000 cubic yards of lava ashes were hydraulicked. The

* A paper read before the American Institute of Mining Engineers, at the Wilkes-Barre meeting, May, 1877.

† "Grizzly": where a drop-off can be made in a line of sluices, steel bars or pieces of railroad iron laid parallel, with spaces between them, are placed on the bottom across and in the end of the sluice, so as to discharge the boulders over an embankment, whilst allowing the finer material to pass between the bars and drop into the undercurrents. The grating formed by the bars is called a grizzly. "Undercurrents" are sluices, 15 to 20 feet wide and 40 to 50 feet long, set on a very slight grade (nearly flat), provided with riffles to catch the gold and amalgam. They are placed to one side, below the main sluice. See *Raymond's Report*, 1873, pp. 415, 416.

‡ In Placer County, at some of the mines, the sluices have a grade from 15 to 24 inches per 12 foot box. NOTE.—Oro Consolidated, sluices 2½ feet wide and 20 inches deep, grade 5 inches to 12 feet (or 10'41 per cent.), are calculated to run 700 miner's inches of water.

§ Double sluices are frequently used in large claims to advantage for continuous washings.

‖ Miner's inch, see further on in this article.

** The term cement is applied to a conglomerate which is chiefly cemented together by ferric oxide.

†† The aggregate number of days' work of all the claims.

‡‡ Each of these inches discharged 2,23⁸ cubic feet of water per 24 hours.

gross yield from 1872–76 was $140,000. The number of cubic yards of gravel moved during the corresponding time is sufficiently large to warrant the generalization that the present known appliances for catching gold are adequately effective.

THE RESULT OF WORKING TAILINGS AT GARDNER'S POINT.

The tailings from all these washings were caught and confined in a ravine situated a short distance below the claim. The length of the sluice through which the gravel passed was 1,373 feet, with three undercurrents. This year the ravine, supposed by many to be exceedingly rich, was cleaned up on joint account by Chinese, under special engagement with the owners, and its gross yield was $1,168, not 1 per cent. of the total receipts from the washings.

ON THE DISTRIBUTION OF GOLD THROUGHOUT THE SLUICES.

In cleaning up sluices, the largest proportion, approximating 80 per cent. of the gold caught, is found in the first 200 feet of the head of the sluices.* The gross yield of the Gardner's Point claims for the season of 1874 was $68,000 for 100 days' run. Of this amount $54.000 was obtained in the first 150 feet of the sluices, and $3,000 taken from the undercurrents. The remainder was found lower down along the sluices. The first undercurrent was 790 feet distant from head of the sluice, and yielded 50 per cent. of the total yield of the undercurrents. The second undercurrent was 78 feet distant from the first, with a drop of 40 feet between them, and it contained 33 per cent. of the gross undercurrent yield. The third undercurrent was 91 feet distant from the second undercurrent, with a drop of 50 feet between them. Its yield was nearly $500.†

It sometimes happens that a hundred or hundred and fifty feet at the head of a sluice is covered with gravel during the greater part of a run. In such cases, the gold is found so much further down the sluice. In the North Bloomfield tunnel, the upper 300 feet of the sluice is generally filled with a considerable depth of gravel, say from 1 to 5 feet, and still this portion yields much more amalgam per linear foot than the next 300 feet of sluice below.

From the report of this company for the year ending October 31, 1876, the following data and facts are worthy of note, as showing the position of the gold as cleaned up in the sluices at No. 8 claim, where some 700,000 inches of water were run, and washing 2,919,000 cubic yards of gravel :

Sump	$1,510 00	·80 per cent. of gross yield.
Flume (1,800 feet)	176,900 73	92.00 " " "
Tunnel below flume	7,290 00	3·75 " " "
Tail sluice (300 feet)	1,800 00	·95 " " "
Undercurrents	5,235 00	2.50 " " "
	$192,735 73	100.00

THE SAVING OF FINE GOLD.

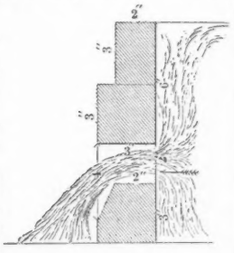
As regards the saving of fine gold, it may be stated that the lessening of grades and the use of undercurrents tend to diminish the losses. Extensive lines of sluices and undercurrents are expensive to build and keep in repair. Like the last concentrator, so the last undercurrent will always catch some metal. Whilst our knowledge of the quantity of gold in gravel banks remains as indefinite as it at present is, the simple and well known appliances now in use are the most convenient and economical to adopt, and let the complaint of loss of microscopic gold and bad sluices be considered by the capitalist as one of the preliminary warnings of a bad investment.

MEASUREMENT OF WATER.

The miner's inch is an arbitrary measurement of water established in early days by the miners in the different camps, in accordance with the laws they adopted. The miner's inch, as accepted in places, is an amount of water discharged from an opening one inch square through a two-inch plank, with a pressure of six inches above the opening.

The Smartsville inch is a discharge through a four-inch orifice, with a seven-inch board top ; that is to say, that the pressure is seven inches above the opening, or nine inches from its center. The bottom of the aperture is on a level with the bottom of the box, and the board which regulates the pressure is a plank 1 inch thick and 7 inches deep. Thus an opening 250 inches long and 4 inches wide, with a pressure of 7 inches above the top of the orifice, will discharge 1,000 Smartsville miner's inches. Each square inch of the opening will discharge 1·76‡ cubic feet per minute, which approximates the discharge of a two-inch orifice through a three-inch plank, with a pressure of 10 inches from the center of the opening, the said discharge being 1·81 cubic feet per minute. The Smartsville miner's inch will discharge 2,534·40 cubic feet in 24 hours, though in that district the inch is only reckoned for 11 hours.

The miner's inch of the Park Canal and Mining Company, in El Dorado County, discharges 1·39§ cubic feet of water per minute.



At the North Bloomfield, Milton, and La Grange mines, the inch has been calculated from a discharge through an opening 50 inches long and 2 inches wide, through a 3-inch plank, with the water 7 inches above the center of the opening.

To determine the value of this miner's inch, a series of experiments were made at Columbia Hill, lat. 39° N., elevation 2,900 feet above sea level. The module used was a rectangular slit 50 inches long and 2 inches wide, pressure 7 inches above the center of the opening. The discharge was over a 3-inch plank, the last inch chamfered as shown in sketch. The size of the opening was taken with a measure (micrometer attached) which had been compared with and adjusted to a standard United States yard. Time was read to one-fifth of a second. The level of the water (drawn from a large reservoir) was determined with Boyden's hooks, micrometer adjustment. The following results were obtained :

1 miner's inch will discharge in			1 second	·2624 cubic feet.
"	"	"	1 minute	1·5744 "
"	"	"	1 hour	94·4640 "
"	"	"	24 hours	2,267·1360 "

Ratio of actual to theoretical discharge, 61·6 per cent. These figures are within the limit of 1-500 possible error.*

A series of experiments made last summer at La Grange, to determine the effective value of the above described inch, gave the following results :

1 miner's inch discharged in			1 second	·2499 cubic feet.
"	"	"	1 minute	1·4994 "
"	"	"	1 hour	89·9640 "
"	"	"	24 hours	2,159·1460 "

Ratio of effective to theoretical discharge, 59·05 per cent.†

TO BE CONTINUED.

THE ACTION OF SMALL SPHERES OF SOLIDS IN ASCENDING CURRENTS OF FLUIDS, AND IN FLUIDS AT REST.‡

By J. C. Bartlett, A. M., Cambridge, Mass.

(*Concluded from page* 103.)

To sum up the results thus far, we see that the velocity of an ascending current of air to keep a ⅛ inch quartz ball in suspension is 86·2 feet per second, and that in this current a ⅛ inch galena ball will rise with an increasing velocity which never exceeds 13 feet per second. We also find that the galena would fall 8 feet in still water in 3·38 seconds, and that, practically, the quartz ball would fall in the same time, being only 0·05 of a second behind. We see that practically the quartz and galena are equal-falling, that they remain together in a column of water, whether at rest or in motion. From XI. we see that the two balls of quartz and galena, which are theoretically equal-falling in water, may be separated by a stream of air, the falling velocity of the quartz being nearly twice as great as that of the galena. We also see that the velocity of an ascending current of air which will keep a ⅛ inch galena ball in suspension is about 13 feet less per second than is required to keep a ⅛ inch quartz ball in suspension ; that in this current the quartz ball would fall with a rapidly increasing velocity, and that, practically, this velocity becomes constant after a few seconds, and is then about 13 feet per second, being the same velocity that the rising galena ball would attain in a stream of air which would sustain the quartz. We also see how very little the diameter of the galena would have to vary in order to have entirely different action in the current which sustains the quartz. If the diameter is ⅛ inch, it rises ; if the diameter is 1·39 eighths, it remains in suspension ; and if the diameter is 1·52 eighths, it will fall as in still water. This illustrates how delicate a medium for separation air is compared with water. If the three galena balls were placed with the ⅛ inch quartz ball in an ascending stream of water which would hold the quartz in suspension, they would separate very slowly, the heaviest galena ball having a maximum falling velocity of about 8 inches per second. But this sensitiveness of a stream of air is not necessarily an advantage, for it requires a correspondingly exact uniformity in the blast of air and in the material to be worked, which is not attainable in practice. From IX. and X. we see that the blast of air necessary to cause the ⅛ galena ball to be retarded to the same extent that it would be in water at rest, or, more exactly, to fall 8 feet in the same time as in water at rest, is 69·62 feet per second, and that in this stream the ⅛ inch quartz would fall 8 feet in about 1 second. It did not fall in the experiment as performed, because the condition under which the experiment was tacitly supposed to have been performed, the condition upon which every discussion on the laws of bodies falling in fluids is based, was violated. This condition was that the air should be perfectly free to move, that the tension of the air below the ball should be the same as above it. In the case of the galena ball this condition was practically complied with, the section of the ball being only $\frac{1}{256}$ that of the tube, but in the case of the quartz ball its section was 1-16 of the section of the tube. The quartz when held in suspension had the same effect in offering resistance to the passage of the air that it would have had if firmly fixed in the middle of the tube. It was held up against the force of gravity not only by the buoyancy of the air and by the force due to the velocity of the air, but also by the excess of tension below it. It was sustained in part by the same kind of force that impels a package through a pneumatic tube, or forces the cork out of a pop-gun. If the diameter of the tube had been one inch instead of two, the velocity of the air necessary to sustain the quartz would have been much less than 69·62 feet, the section of the tube being only 4 times that of the sphere. That all the difference between the theoretical results and the result of the experiment as performed was due to this one cause cannot be asserted ; there may have been some inaccuracy in measuring the small galena ball, and we have seen what a change in action a difference in diameter of 1-16 inch makes. The balls may have been rough or not of spherical shape ; indeed, from the brittle, crumbling nature of galena it must be quite impossible to make a small smooth sphere out of it.

But supposing that the theoretical results may all be verified by properly conducted experiments, the point which Mr. Krom made, namely, that, though the two balls could not be separated by water, they could be separated by air, remains the same, and it makes very little difference whether the galena goes up or down, if it only leaves the suspended quartz ball. After describing the experiment he says : "Thus demonstrating that, instead of less margin, we have in air a much greater margin for separating ores than in water. Before making these experiments I expected to find a margin for separating ores, in favor of air, but did not anticipate it would prove so great. But the experiment proved that ⅛ globule of galena and 4-8 of quartz, which are equal-falling in still or moving water, can be separated by air. The results correspond exactly with the results obtained in practice, viz. that with less sizing better results can be obtained with air than can possibly be reached with water." The expression "greater margin" might be misleading. It is often applied in speaking of difference in cost and selling price, to profits, where a large margin is desirable ; it is a pleasing term, but the only meaning it can have in the case under consideration is, that the ratio between the sizes of quartz and galena which air will separate and water will not is greater than the ratio between the two sizes that water will separate and air will not. This is true, and if all the pieces of ore in a crushed heap were of two sizes only, and the quartz pieces were four times as large as the galena, air would be a better medium than water. But this is not the case in practice, and if it were, a screen would be the simplest separator. If the pieces of quartz were 2·88 eighths and the galena ⅛ inch in diameter, air would not separate them, but water would ; hence water, though

* Mr. P. Wright, Assistant Engineer for Water Supply, Beechwood District, giving his experience on this subject, says that, "with a sluice 12 inches wide on an incline of 1 foot to 48 feet, using 600 gallons per minute, . . . I have found 95 per cent. of the gold within three feet of where the gravel was filled into the sluice—where the gold was lying upon a smooth board, and yet a powerful current failed to move it."—*The Gold Fields and Mineral Districts of Victoria*, P. Brough Smyth, p. 133.

† The figures showing the yield of the undercurrents were calculated from the amalgam.

‡ Determined by Mr. Thurston.

§ Estimated by J. J. Crawford, M. E.

* Experiments were made in 1874 by H. Smith, Jr.

† These results are the average of a series of experiments made by the writer.

‡ A paper read before the American Institute of Mining Engineers, at the Wilkes-Barre meeting, May, 1877.

offering less "margin," is in this case a better separator than air. That medium is the best for the separation of two substances for which the ratio of the diameters of equal-falling spheres is greatest, or, in other words, that medium is best which will separate most readily spheres of the two substances nearest in size. Hence a fluid whose specific gravity lies between those of the substances is the best, and of two fluids, both lighter than the substances, that is better which is denser. As regards sizing, the lighter fluid requires a more careful sizing, the number of sizes required for the different fluids being inversely proportional to the ratios of equal-falling diameters. With any fluid the excellence of separation increases with the number of sizes, and the Germans have found by experience that it is advantageous to make ten sizes between 18 mm. and 1 mm. The excellence of their work in concentration is remarkable, nearly all the loss being in the loss of the minute particles of ore which are carried away with the slimes of the gangue. Their system seems perfect in other respects, and now the problem is, to devise some way of saving these fine particles, which remain for a long time in suspension even in water at rest. In dry concentration the loss in this form is avoided; the ore dust is removed with the gangue dust, and both are saved—"saved for subsequent treatment" is the last operation it goes through generally. Now it is proposed, however, by the manager of one system of *dry* concentration, to treat this dust in the *wet* way, thus employing water only in that part of the operation where it is most wasteful. If there is any place in which air can be economically used, it is in the treatment of the finest sizes, from 4 mm. to ½ mm., or as fine as can be well sized. From the great velocity of air necessary to raise or hold in suspension a quartz ball of from 12 mm. to 16 mm. diameter, it would seem quite impossible to treat such sizes economically by means of air.

To give an opportunity of testing the theoretical results as described by means of the preceding formulæ, the following table has been calculated. Since perfect spheres of quartz and galena are difficult to make, four other substances have been taken—ivory, glass, zinc, and lead, from which, by turning or molding, very perfect and smooth spheres may be made. The first vertical column contains the name of the substances, the second their specific gravities, the third their diameters in millimeters, the fourth their weight in grams, introduced as a check. If the balls do not weigh as here given, either they have not been made of the right size or the specific gravity is different from that assumed here. As the specific gravity of these substances is quite uniform and well established, any great variation in weight would probably be due to error in size or shape. The fifth and sixth columns contain the suspension velocities for water and air, from 2.5 for ivory 2 mm. in diameter falling 10 meters to 0.0155 for lead 16 mm. falling 3 meters; hence —1 cannot be neglected in comparison with ε^{-2sAB}. But for water $-2sAB$ varies in the same limits from 2006.5 to 12.4; hence —1 may be neglected, and (9), deduced on this supposition, may be employed. As far as experimental verification is concerned, the formula $t = sA$ is sufficiently accurate for water, the value of the remaining term of (13) varying in the assumed cases between 0.032 for ivory 2 mm. and 0.161 for lead 16 mm. When C is not equal to 0, we may employ (10) to find the falling time, provided AC —1 may be neglected in comparison with $(AC+1)\,\varepsilon^{2Bt}$; that is, when $AC - 1$ is nearly equal to 0, or $C = \frac{1}{A}$ nearly; that is, when the velocity of the current is somewhere near the suspension velocity. AC —1 may also be neglected, though not very small, if $(AC+1)\,\varepsilon^{2Bt}$ is large, or if B is large; or, as B is inversely proportioned to the square root of d, when the sphere is very small. Relatively to the density of the sphere, B is a maximum, in the case of water, when the density is 2. If the density of the sphere is less than that of the fluid, A and B are imaginary. The fundamental formulæ (1) and (2) were deduced on the supposition that the density of the sphere was greater than that of the fluid, and they would assume an entirely different form, and the discussion would be quite different under the supposition that the density of the sphere is less than that of the fluid.

From the table we see that a blast of air which will keep in suspension a 2 mm. lead ball will sustain a glass ball 8 mm. in diameter, or an ivory ball 12 mm. in diameter. The suspension velocity for the lead being 21.79 m., and for the other two 21.05 m. and 21.46 m., the ivory and glass would rise, theoretically, with a slight velocity; but as perfect accuracy cannot be attained in the conditions, the results of well conducted experiments might vary somewhat from the theoretical. From the table we also find that an ascending current of water which will support a 2 mm. ball of lead will sustain a 12mm. glass ball, the glass rising slowly, perhaps. Similar experiments may be made in water with ivory 16 mm. and glass 8 mm, with ivory 12 mm. and zinc 2 mm., with lead 4 mm. and zinc 8 mm. In water at rest, ivory 16 mm. and glass 8 mm. will fall 3 meters in about 5·1 seconds; glass 16 mm. and zinc 4 mm. will fall 10 meters in nearly the same time, between 12 and 13 seconds, the glass reaching the bottom about ¾ second sooner. Similarly a large number of experiments may be made up from the table to test the theoretical results. Experiments with very small and light balls, such as 2 mm. ivory or glass, would probably not coincide very closely

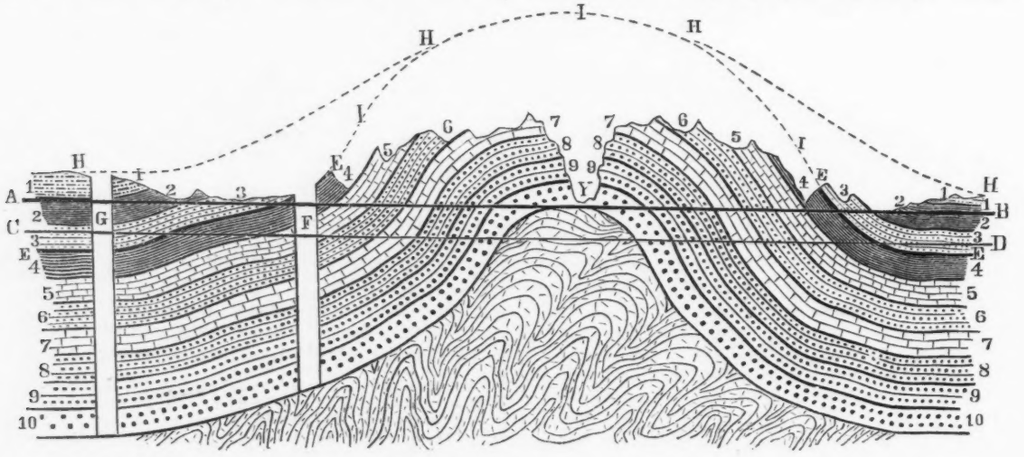


FIG. 8.—GENERALIZED SECTION THROUGH THE UINTA MOUNTAINS FROM NORTH TO SOUTH.—*See page* 132.

respectively, in meters—by suspension velocity being understood the velocity of a vertically ascending stream of the fluid necessary to keep the given sphere in suspension. The seventh, eighth, and ninth columns contain the times, in seconds, of falling from rest in water at rest through 3, 5, and 10 meters respectively. These values were calculated from (9). Since s is negative for all cases, we may as well regard downward direction positive and write the formula

$$(13)\quad t = sA + \frac{0.69315}{B}.$$

Substance.	Density	Diameter in millimeters.	Weight in grams.	Suspension velocity in meters.		Value of t for water when C = 0 and s =		
				Water.	Air.	3 m.	5 m.	10 m.
Ivory	1·87	2	0·0078	0·213	8·84	14·10	23·48	46·92
Glass	2·65	2	0·0111	0·294	10·53	10·25	17·06	34·08
Zinc	6·90	2	0·0289	0·555	16·99	5·45	9·05	18·05
Lead	11·35	2	0·0475	0·736	21·79	4·14	6·85	13·65
Ivory	1·87	4	0·0627	0·302	12·50	9·99	16·62	33·20
Glass	2·65	4	0·0888	0·415	14·89	7·27	12·08	24·12
Zinc	6·90	4	0·2312	0·786	24·02	3·88	6·43	12·83
Lead	11·35	4	0·3803	1·040	30·81	2·97	4·89	9·69
Ivory	1·87	8	0·5013	0·427	17·68	7·10	11·79	23·51
Glass	2·65	8	0·7104	0·587	21·05	5·17	8·58	17·09
Zinc	6·90	8	1·850	1·111	33·97	2·80	4·60	9·10
Lead	11·35	8	3·043	1·471	43·58	2·15	3·51	6·91
Ivory	1·87	12	1·692	0·522	21·46	5·82	9·65	19·22
Glass	2·65	12	2·398	0·720	25·78	4·25	7·03	13·98
Zinc	6·90	12	6·243	1·361	41·61	2·32	3·79	7·46
Lead	11·35	12	10·27	1·802	53·37	1·81	2·92	5·69
Ivory	1·87	16	4·011	0·603	25·00	5·07	8·38	16·67
Glass	2·65	16	5·683	0·831	29·77	3·71	6·11	12·13
Zinc	6·90	16	14·80	1·571	48·05	2·04	3·31	6·50
Lead	11·35	16	24·34	2·081	61·56	1·60	2·56	4·97

For all the cases assumed in the preceding table formula (13) is more than sufficiently accurate, but it would lead to wrong results if applied to bodies falling in air. In the exact formula (8), the value of $-2sAB$ varies, in the case of with theory, on account of unavoidable inaccuracy of measurement or the adhesion of air bubbles.

The following may also serve for experimental tests:

XII. In an ascending current of air which will keep an 8 mm. ivory ball in suspension, how long will it take a 4 mm. zinc ball to fall 3 m.? From (10) we find $t = 1·787$.

XIII. In a stream of air which will keep a 12 mm. glass ball in suspension, how long will it take a 4 mm. lead ball to fall from rest 3 m. and 5 m.? From (10) we find for 3 m. $t = 2·235$, and for 5 m. $t = 2\,633$. From these two answers we see how nearly the lead ball has attained the limit of its velocity. The limit is 30·813 — 25·783, or 5·03. It passes over the last two meters in 2·633 — 2·235 seconds, or in 0·398 of a second, which is at the rate of 5·003 meters per second. Therefore, we may assume the velocity constant, and say, for instance, that it would fall through 10 meters in 2·63 + 1 = 3·63 seconds.

XIV. In a stream of air which will support a 12 mm. ivory ball, how long will it take a 12 mm. glass ball to fall from rest through 3 m., 5 m., and 10 m.? From the same formula (10) we find $t = 2·064$, 2·524, and 3·674.

XV. How long will it take a 16 mm. ivory ball to fall from rest in air at rest through 30 m., 40 m., and 50 m.? From (8), $t = 2·671$, 3·162, 3·623. In a vacuum these values would be 2·473, 2·856, and 3·193.

XVI. How long will it take a 4 mm. ivory ball to fall from rest in air at rest through 30 m, 40 m., and 50 m.? From (8), $t = 3·280$, 4·081, 4·882. In a vacuum these values would be 2·671, 3·162, and 3·623.

THE STONE HILL COPPER MINE AND WORKS, CLEBURNE COUNTY, ALA.*

(*Concluded from page* 109.)

GENERAL CONSIDERATIONS.

The Stone Hill Mining Company has three very important elements of success in a higher degree than any other copper works in the Alleghanies:

1. It has a large deposit of easily mined and easily dressed ore, the average assay of which as it goes to the furnace is 7 to 8 per cent., or about 2 per cent. higher than that of the Ducktown ore.

2. It has cheap fuel, wood being delivered at the works in any desired quantity at $1.50 per cord, as against $3 a cord at Ducktown. This item must, of

* Extracts from a *Report* by R. P. Rothwell, Mining Engineer.

course, increase in cost in the future, but the prices will probably always remain lower than at Ducktown and Ore Knob, in sympathy with the less value of timber lands and the lower rates of wages in Alabama.

3. Abundant labor at exceedingly low rates. Ordinary negro labor—as a rule far better than white labor for that climate—is now 80 cents per day. Mechanics, black or white, are paid from $1 to $1.50 per day. The negroes at these mines, as well as at the numerous iron works in Alabama, are found both efficient and reliable, and their wages will probably long remain considerably below those of our white laborers throughout the North.

COST OF PRODUCING INGOT COPPER.

ESTIMATED COST OF SMELTING 45 TONS PER DAY, OR SAY 2,000,000 LB. A YEAR, OR 167,000 LB. PER MONTH,* BY BLAST FURNACE.

	Per day.	Per month.	Per lb. ingot.
			Cents.
Ore Roasting, 45 tons per day:			
Labor, 50c. per ton	$22 50	$900 00	0·54
Clay, Luting, etc	2 50		
Hauling roasted ore, 5c. per M	5 04		
Ore Smelting, 45 tons, 3 furnaces running:			
Per day, for each furnace, labor 2 men at $1.50	8 00		
" " " 4 men at 1·25			
Charcoal, 10,000 lb. at ⅛ cent	33 33	3854 70	2·32
Slag hauling	1 50		
Repairing 6 furnaces at $35 per month	.....	210 00	0·13
3 M. fire-brick at $100	.....	300 00	0 18
Matte Roasting, 11 tons:			
Hauling to stalls, at 10c. per M	2 20		
Wood, 2·4 cords at $1.50	3 60	441 60	0·26
Labor, 28c. per M. for four fires	6 72		
Hauling to matte furnace at 10c	2 20		
Matte Smelting (15 tons, including flux):			
Same as for ore furnace	.....	1455 00	0·87
Blister Smelting:			
5 cords wood, at $1.50	7 50	375 00	0·34
4 men	5 00		
Repairs		200 00	
Refining:			
Same cost as blistering	.....	575 00	0·34
General Expenses:		8311 30	4·98
Mechanics, assayer, weighmaster, etc	35 00	1050 00	0·63
Salaries and office expenses	.....	750 00	0·45
Wood, etc., at blowing engine	.....	900 00	0 54
Contingencies estimated	.....	1500 00	0 90
Total cost	.....	12,511 30	7·50

The cost of treatment by reverberatories would be about 2 cents per lb. of ingot greater, as shown in the following statement:

ESTIMATED COST OF SMELTING, REVERBERATORY PROCESS.

	Per day.	Month.	Per lb. ingot.
			Cents.
Roasting, 45 *tons* = 167,000 lb. ingot, monthly:			
Two cords wood, at $1 50	$ 3 00	785 40	0·47
Labor, 13c. per M.	13 65		
Haulage, 10c. M.	10 08		
Ore Smelting, 13 furnaces, each furnace smelting 8,000 lb. per charge:			
Wood, 6 cords, at $1.50 ..... 9 00			
Labor 4 50	14x13	182 00	5460 00	3·27
Repairs 50			
First Matte Roasting, 3,500 lb.:			
Hauling, at 10c., Crushing matte, 7c., Wood, 6 cords, Labor, 6 men.	.....	22 20	666 00	0·39
Second Matte Smelting, 5,000 lb. (4 furnaces, each smelting 9,000 lb.)		60 00	1800 00	1·08
Second Matte Roasting, 15,000 lb.:			
Labor, 2 men; Wood, 2 cords; Crushing $1.00; Hauling, $1.50	.....	8 00	240 00	0·14
White Metal Smelting:			
2 furnaces at $14 00	.....	28 00	840 00	0·50
Blister Smelting and Refining:			
2 furnaces	.....	28 00	840 00	0·50
Repairs, 21 furnaces running at $50 per month	.....	1050 00	0·63
Cost	.....	354 38	11681 60	6·98
General Expenses (same as in blast furnace)	.....	4200 00	2·52
Total Cost	.....	15881 60	9·50

SUMMARY.

	Reverberatory Furnace.		Blast Furnace.	
	per month.	lb. ingot Cents.	per month	lb ingot Cents.
Smelting, repairs, and general expenses	$15,881 60	9·50	12518 80	7·50
Add cost mining, $3.85 per ton	....	3·00	....	3·00
Transportation to market, cartage, etc	....	1·50	....	1·50
Commissions and contingent expenses	....	1·00	....	1·00
Total cost	....	15	....	13
Market price of ingot	....	19	....	19
Balance, profit,	....	4		6

* This will allow liberally for delays and interruptions.

In the vicinity of the works is a large deposit of pure white kaolin, and within a few hundred feet of the mine is a quarry of excellent refractory talcose slate which is used advantageously in the fire boxes of the reverberatories.

Brick clay and white quartz are also abundant at the works. Water is supplied by numerous springs, and by a creek shown on the map in our last number. We have here, then, a concentration of elements of cheap production which must contribute largely to the success of this enterprise. The mines are 30 miles from Oxford, the nearest railroad station on the Selima, Rome & Dalton Railroad. At present the contract price paid for hauling is $8 per ton of 2,240 lb., but it seems impossible that any large amount of work can be done at this rate. Even $10 per ton would be a moderate price.

The statements showing the cost of the mining, mechanical preparation, and smelting of the ore are given in detail, in order that experts may be able to judge of their correctness and that the figures found may receive due and proper weight. From these it appears that ingot copper of excellent quality—the ore containing neither arsenic nor antimony—can be produced and marketed at a cost of 13c. per lb., while even at the present low market value of copper this product will command nearly 19c. The market is likely to advance rather than decline, in consequence of the demand for our best coppers—in which we class Lake, Stone Hill, Ducktown, Ore Knob, and Vermont—constantly increasing, and the supply even now being scarcely equal to the demand. There are but a few of the Lake Superior mines that can produce copper at 19 cents a pound, and, should the price fall much below that figure, the majority of the mines there would have to stop work. We may, therefore, consider 18 cents as low as the market will probably go, and the indications are that it will rise rather than decline.

These estimates are, in nearly every case, the prices actually paid for the same work either at Stone Hill or at Ducktown within the past year.* The

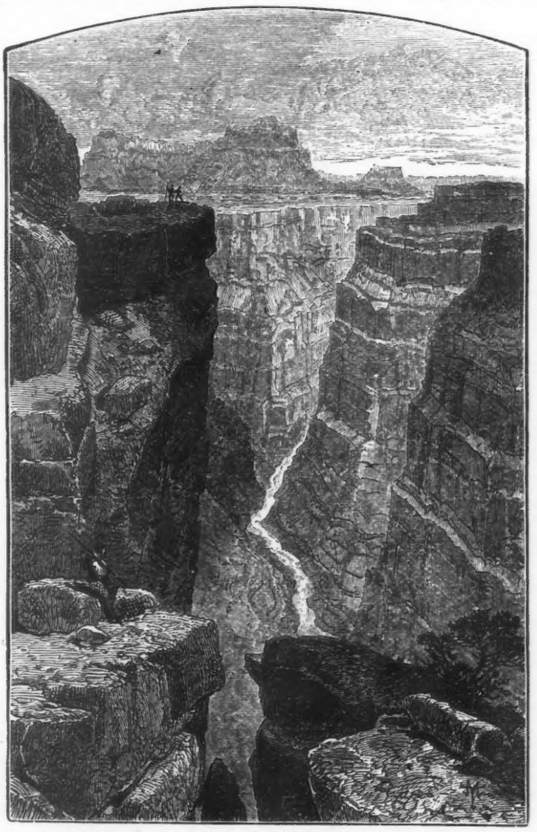


FIG. 9.—THE GRAND CANON, LOOKING EAST FROM TO-RO-WEAP.—*See page* 132.

prices at the latter place are considerably higher than those paid at the former, and they were higher when these figures were ruling than they are to-day. Most of the work, both in the mine and smelting works, is done by contract, and the prices given in these estimates are such that all ordinary labor can earn $1.25 to $1.50 per day.

RATES OF FREIGHT TO MARKET PER TON (2,240 LB.).

From mine to Oxford	$10 00	From Oxford to Savannah	$6 25
" Oxford to New York	9 50	" " Mobile	4 35
" " Philadelphia	9 90	" " Pensacola	4 35
" " Baltimore	8 90	" " New Orleans	6 00

From Mobile and Pensacola the copper would be carried to European ports at exceedingly low rates, as ballast in cotton ships. The European demand for our best quality of copper, which includes Stone Hill, is constantly increasing, as will be seen by referring to the following statement of exports and production:

	Exports.	Production.
In 1873	1,000,000 lb.	31,000,000 lb.
1874	8,000,000	38,000,000
1875	7,000,000	40,000,000
1876	16,000,000	40,000,000
1877 (estimated	23,000,000	

The Southern market is within the almost exclusive control of the Stone Hill Company, and at prices still more remunerative than those of New York. Some twenty-five railroads south of Chattanooga consume annually about 300,000 lb. This company may secure a market for probably 200,000 to 250,000 lb. a year.

* For many of the data of cost contained in this report I am indebted to Mr. Arthur F. Wendt, M. E., recently connected with the Ducktown Works.

THE VALLEY OF THE COLORADO RIVER, AND ITS GEOLOGY.—III.*

UINTA MOUNTAINS.

To the west of the Green River stand the Wasatch Mountains, a system of peaks, tables, and elevated valleys, having a northerly and southerly direction, nearly parallel to the river. The range known as the Uinta Mountains stands at right angles to the Wasatch, extending toward the east, and no definite line of division can be noticed. The Wasatch is a great trunk, with a branch called the Uinta. Near the junction, the two ranges have about the same altitude, and the gulches of the summits are filled with perpetual snow; but toward the east, the Uinta peaks are lower, gradually diminishing in altitude until they are lost in low ridges and hills.

Through this range the Green River runs, and a series of cañons forms its channel.

To a person studying the physical geography of this country, without a knowledge of its geology, it would seem very strange that the river should cut through the mountains, when, apparently, it might have passed around them to the east, through valleys, for there are such along the north side of the Uintas, extending to the east, where the mountains are degraded to hills, and, passing around these, there are other valleys, extending to the Green on the south side of the range. Then, why did the river run through the mountains?

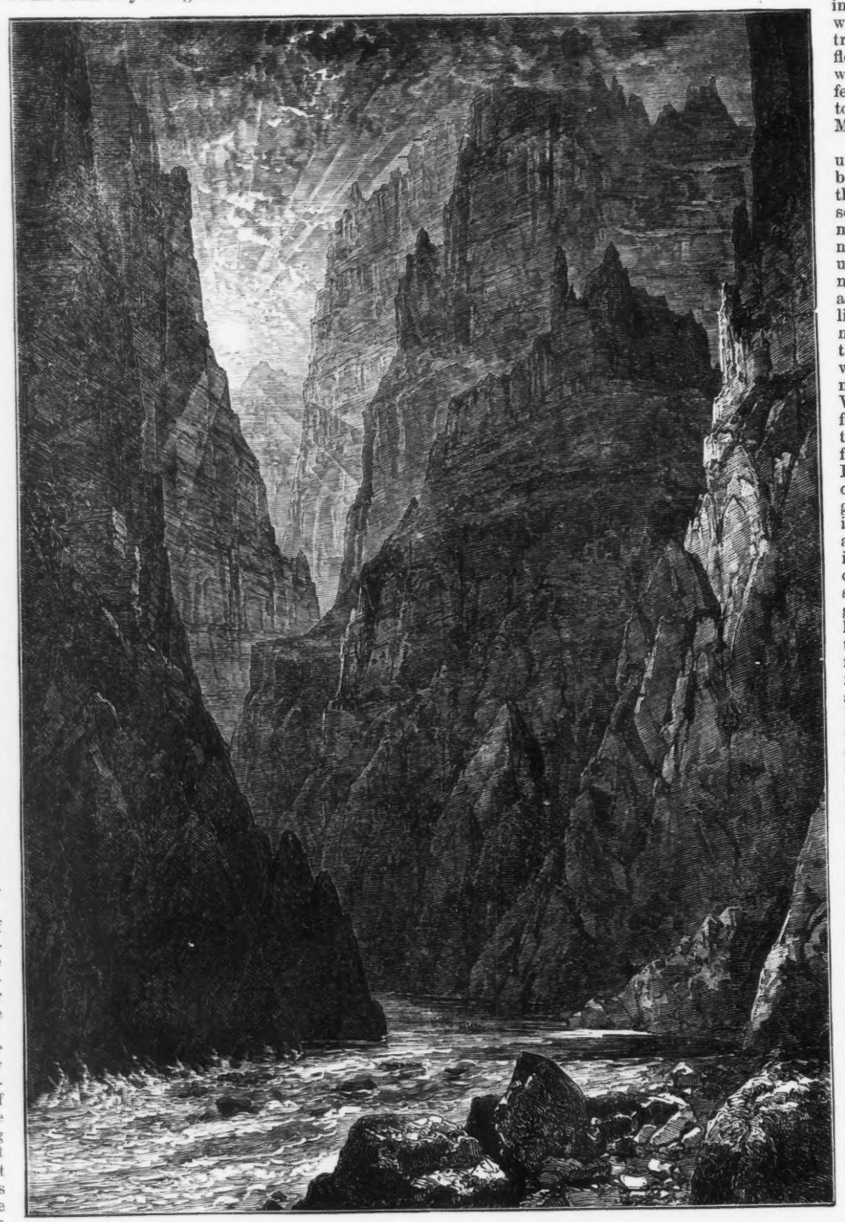


FIG. 10.—THE GRAND CANON OF THE COLORADO (6,200 FEET DEEP).

The first explanation suggested is that it followed a previously formed fissure through the range; but very little examination will show that this explanation is unsatisfactory. The proof is abundant that the river cut its own channel; that the cañons are gorges of corrasion. Again, the question returns to us, why did not the stream turn around this great obstruction, rather than pass through it? The answer is that the river had the right of way; in other words, it was running ere the mountains were formed; not before the rocks of which the mountains are composed were deposited, but before the formations were folded so as to make a mountain range.

The contracting or shrivveling of the earth causes the rocks near the surface to wrinkle or fold, and such a fold was started athwart the course of the river. Had it been suddenly formed, it would have been an obstruction sufficient to turn the water in a new course to the east, beyond the extension of the wrinkle; but the emergence of the fold above the general surface of the country was little or no faster than the progress of the corrasion of the channel. We may say, then, that the river did not cut its way down through the mountains, from a height of many thousand feet above its present site, but, having an elevation differing but little, perhaps, from what it now has, as the fold was lifted it cleared away the obstruction by cutting a cañon, and the walls were thus elevated on either side. The river preserved its level, but the mountains were lifted up; as the saw revolves on a fixed pivot while the log through which it cuts is moved along. The river was the saw which cut the mountains in two.

Recurring to the time before this wrinkle was formed, there were beds of sandstone, shale, and limestone, more than 24,000 feet in thickness, spread horizontally over a broad stretch of this country. Then the summit of the fold slowly emerged until the lower beds of sandstone were lifted to the altitude at first occupied by the upper beds, and if these upper beds had not been carried away, they would now be found more than 24,000 feet above the river, and we should have a billow of sandstone, with its axis lying in an easterly and westerly direction, more than 100 miles in length, 50 miles in breadth, and over 24,000 feet higher than the present altitude of the river, gently rounded from its central line above to the foot of the slope on either side. But as the rocks were lifted, rain fell upon them and gathered into streams, and the wash of the rains and the corrasion of the rivers cut the billow down almost as fast as it rose, so that the present altitude of these mountains marks only the difference between the elevation and the denudation.

It has been said that the elevation of the wrinkle was 24,000 feet, but it is probable that this is not the entire amount, for the present altitude of the river above the sea is nearly 6,000 feet; and when this folding began we have reason to believe that the general surface of this country was but slightly above that general standard of comparison. Then there were downturned as well as upturned wrinkles, or, as the geologist would say, there were synclinal as well as anticlinal folds. Had there been no degradation of the fold, there would have been a bed of rock turned over its summit 24,000 feet above the present level of the river. Now that bed is gone from the mountains, yet it can be seen turned up on edge against the flanks of the mountains, dipping under the beds of the rock found farther out from the range. Follow it down, and doubtless we could trace it to a depth much below the level of the sea. While the folds were forming, the upturned flexures were cut down, and the troughs in the downturned flexure were filled up, and we have more than 8,000 feet of these later sediments to the north of the Uinta Mountains.

It will be seen that the upheaval was not marked by a great convulsion, for the lifting of the rocks was so slow that the rains removed the sandstones almost as fast as they came up. The mountains were not thrust up as peaks, but a great block was slowly lifted, and from this the mountains were carved by the clouds—patient artists, who take what time may be necessary for their work. We speak of mountains forming clouds about their tops: the clouds have formed the mountains. Lift a district of granite, or marble, into their region, and they gather about it, and hurl their storms against it, beating the rocks into sands, and then they carry them out into the sea, carving out cañons, gulches, and valleys, and leaving plateaus and mountains embossed on the surface. Instead of having a rounded billow, we have an irregular table, with beds dipping to the north on the north side of the axis, and to the south on the south side, and in passing over the truncated fold we pass over their upturned edges.

Go out on the flank of the fold and find the bed of rock which would form the summit of the great wrinkle, had there been no erosion, and there sink a shaft 24,000 feet, and you will be able to study a certain succession of beds of sandstone, shale, and limestone. Go 2 or 3 miles farther from the mountains and sink a shaft; the first 8,000 or more feet will be through sandstones and shales, unlike those seen in the first section; then you will strike the summit of the first section. Continuing down for 24,000 feet, the first will be reproduced, stratum for stratum. Now start on either side of the fold, and cross to its center, and you will pass over the same series of strata in the same order as you would in descending the first mentioned shaft, and in the second also, below the upper 8,000 feet. Now pass again from the center to the flank of the fold, in either direction, and you can study the same rocks in the same order as you would in ascending these shafts.

It will thus be seen that in these truncated folds we are enabled to study geological formations without descending into the depths of the earth. Fig. 8 has been constructed for the purpose of graphically expressing some of the important facts observed in the great Uinta Fold. In this diagram, the line A B represents the lowest line of observation as exhibited in the bed of the river. All below this line is theoretical. The line C D represents the level of the sea. The stratum E E, EE, was the last deposited antecedent to the commencement of the emergence of the summit of the fold. The diagram does not properly represent the entire amount of erosion, from the fact that the vertical scale is exaggerated, and the beds have been extended beyond their proper limits, for the purpose of representing more clearly other facts of interest. The altitude of the rocks above the line of observation (A B) is exaggerated about five times. If they

* Extracts from Report of Major J. W. Powell on *The Exploration of the Colorado River of the West.* Washington, 1875.

were reduced to one-fifth, the proportion between the rocks seen in the various escarpments of these mountains and those carried away by the broken lines would be properly represented. In speaking of the great upheaval of rocks from which the Uinta Mountains are carved, I have spoken of wrinkling and folding as if the rocks were always flexed; but these displacements are sometimes attended with fractures, on one side of which the rocks are upheaved, or thrown down on the other. Such displacements are called faults. Faults like these are seen in many places in the Uinta Mountains; one great one on the north side, the throw of which is nearly 20,000 feet, and many others are found of lesser magnitude. In speaking of elevation or depression by faulting or folding, it must be understood that reference is made to a change of altitude in relation to the surface of the sea, so that upheaval or throw is only relative to this general standard of comparison. But during the geological ages represented in the folding and carving of the Uinta Mountains, it is possible the level of the sea has been changed by the shrinking of the earth, and a part, at least, of the apparent upheaval above mentioned may be accounted for by a depression of the formations in synclinal folds, and the letting down of broad areas of the earth's surface by lateral contraction exhibited in corrugation.

MINING NEWS.

Staff Correspondence of the Engineering and Mining Journal.

GENERAL NOTES.

The Sunshine Company at Idaho are enlarging their mill by adding 10 more stamps. This is satisfactory news.

The Burleigh Tunnel at Georgetown has reached a length of 2,200 feet, and is progressing two feet per day. Two of the veins cut are being worked, and with success.

About 100 men, miners and prospectors, are working in Geneva District. The Revenue Company, the Leviathan Company, and the Gilman-Planet Company are the heaviest operators. The Revenue tunnel is in 600 feet, and steadily advancing to their objective point, the Revenue lode, which will be cut 900 feet from the mouth of the tunnel, and 600 feet deep. The Planet Mine is shipping over some very fine looking galena ore. Best & Allen, on the Leviathan, are doing well.

COLORADO.

Summit County.—The placer mines on the Blue Valley are now in full work. The season has been about three weeks late, but there is now an abundance of water, and operators are hoping that what was lost in the spring will be gained in the fall. The following notes are from our special correspondent, who has lately passed through that district:

At the Izard claim the first clean up of the season from 400 cubic yards of gravel yielded $592, at a total expense of $100. A Little Grant has been put in which now vastly increases the work.

A Little Grant has also been put up on Follet & Tucker's claim in Ten Mile. This property is reported also as doing unusually well.

Jebb and Bullion, at the mouth of French Gulch, are working 16 men, and taking out about $15 per day to the man. This claim is one of great value and is very rich. It is not as well off for water and dumpage facilities, however, as it might be.

The Badger Company in French Gulch and Calvin Clark are doing fairly well. At the upper end of this run, F. J. Ebert, of the Exchange Bank, Denver, has struck it rich, and is said to be taking out $60 per day to the man. The gold at the head of French is coarse, and the ground is known to be very rich, but heretofore has been above the reach of much water. Mr. Ebert has taken out a number of nuggets, among which was one weighing 9 ounces.

Adams, in Iowa Gulch, is making good wages and something more.

Roland & Slogsdill on the Lower Swan, and Peabody and Walker on Gold Run, are doubling their last year's yield. Both are just beginning to get at their good ground.

The Fuller Company, who are operating on a larger scale than any other organization in the valley, have 6 Grants at work, and are taking out from $3,000 to $5,000 per week, at an expense of $1,500. This company will produce as much this year as was taken out of the entire valley last year.

At the head of the Blue, Bemrose is doing well, as usual. Unless the water gives out sooner than usual, his production will show a considerable gain on that of last year.

The yield of dust from this valley will be fully $150,000 this year, if not more. This is a higher figure than any since 1862 and 1863, when the mines were first discovered.

Reports from Hahn's Peak are to the effect that the two large companies operating in the district are fully satisfied so far with their preparatory work, and will go ahead vigorously to more developments. About $90,000 has been spent in bringing water into the mines, building flumes, etc. etc., and as much more will be put in. Only a small amount of gold has been taken out yet, for the companies are not prepared. Some washing will be done this season, but not much, as there is still development work to be done.

THE DOLLY VARDEN MINE, MT. LINCOLN.

The Hall & Brunck Mining Company of Colorado is a recently formed organization operating on the Dolly Varden Mine on Mt. Bross, in that State. The capital stock is $1,000,000 in shares of $25 each, fully paid and non-assessable. The property consists of a deposit of silver-bearing ore in the limestone of Mt. Bross, situated quite close to the well-known Hiawatha, and only a short distance from the Moose. The claim covers eighty acres.

The Dolly Varden Mine has always held a first-class reputation in Colorado, and is known as one of the most profitable properties in the State. It was among the earliest discoveries on the mountain, and has been worked continuously, we believe, for four years by Messrs. Hall & Brunck, the founders of the present company. The total production of the mine we are not acquainted with. Mill-runs, however, average from 120 ounces per ton up to as high as 650 ounces per ton in large lots. The mineral consists of silver sulphides, associated with a small quantity of galena, zinc-blende, and pyrites, the whole in lime and baryta gangue.

Hitherto this mine has been able to profit only by its richer ores, as it had no mill of its own. There are, therefore, thousands of tons of lower grades in the mine and on the dump which will mill from $50 to $75 per ton. It is the intention of the company to commence immediately the erection of reduction works of some kind for the treatment of its poorer ores. By this means the output of the mine will be heavily increased. The building of a tramway from the mine to the mill is also contemplated.

The company now being organized, with a sufficient working capital to insure economic handling of the mine, there are few properties in the State that should yield as well. The mine is easily and rapidly worked, and so far has shown few barren places.

Twenty tons recently taken from the Dolly Varden brought $400 per ton.

MAKING SLAG BLOCKS.

A process for converting slag into materials for paving streets and footpaths and other purposes is in operation at Acklam and Lackenby, near Middlesbrough, and also at Tipton, in Staffordshire, with considerable success. The patentee of the process is Mr. Joseph Woodward, of Leamington, who has devoted considerable time to perfecting his process, which, as now carried on, is one of great simplicity. The apparatus for molding the slag consists of a horizontal wheel of 20 feet or 25 feet in diameter, which revolves upon a vertical axis. It is constructed almost wholly of ordinary T iron, and is braced with rods so as to render it perfectly rigid. Round the margin of the wheel are attached a number of cast-iron boxes or molds, for the reception of the slag as it flows from the furnace. These boxes are made with a movabl bottom, which is secured in its place by a latch. Whilst making blocks for general stock it is usual to employ molds of different sizes and shapes at the same time, leaving the assortment of the blocks until they are cold; but when any particular kind is required urgently, the entire wheel is fitted with molds all of the same pattern, which can be done quickly and with ease.

The whole apparatus is made to revolve by means of hand wheels and gearing, and so the boxes are filled one after the other as fast as the slag flows from the furnace. As soon as the slag flows into the mold it begins to cool and its bright red color to fade, but it does not become sufficiently solid to be moved until the wheel has made about a quarter of a revolution. At this point a boy tips the latch up, and the bottom of the box falls down, allowing the box to slide out on the ground. When released from the mold the brick or paving block is consolidated only on the outside, the greater part of it being still in a molten condition. As the brick falls it is lifted up by a boy with a three-pronged fork, and delivered to a man who transfers it to one of the annealing ovens, which, as a matter of convenience, are arranged concentrically with the wheel. On being placed in the oven, the angles and corners of the brick, which had lost their color and faded, again become red, and the whole is maintained at a bright red heat for twenty-four hours, after which the dampers are closed and the whole kiln is left to cool, which it does sufficiently to admit of the contents being removed in about twenty-four hours more. The designing of a box suitable for molding the slag was a matter of some difficulty, as it was necessary that the mold should be perfectly square at the angles, and it was found in the first patterns that the blocks, when made, could not be conveniently removed from the molds, as the amount of shrinking was not sufficient to separate the block from the sides of the iron box. The box now used, however, answers its purpose effectually. A weight is fixed in connection with the movable bottom of the mold, and so adjusted that the bottom remains closed so long as the box is empty, but that it falls down by the weight of the slag block when the latch is released.

The ovens employed for annealing the blocks are simple in construction, and do not require a large quantity of coal to produce the necessary heat. It is in most cases, moreover, practicable to utilize the waste gas from the blast furnaces for bringing up the temperature of the ovens; and when this can be done, a very large proportion of coal may be saved. The waste gas is conducted round the back of the ovens by an underground pipe, which is connected with the several blowers, and can be directed, by stopping certain valves, to any particular oven.

The bricks and paving blocks turned out by the process are very hard and compact, and judging from their power of wear under traffic, as illustrated at Stockton-on-Tees, Darlington, and elsewhere, they evidently possess in addition the property of toughness, so essential in a material intended to resist heavy traffic. The weight of the manufactured slag is 168 lb. to the cubic foot, and the blocks are very neat and square, affording under traffic a fine level surface, productive of little noise, and apparently not prone to become slippery. The manufactured slag can be applied to various purposes besides the paving of streets. Tram-road blocks, sewer bricks, and a variety of other articles can be produced, which, from their accuracy of form, comparative cheapness, and impermeability to moisture, are likely to be favorably received. The crushing strain of the manufactured material is something over 8,000 lb. to the square inch.—*The Engineer.*

NOTES.

SILICATED NICKEL ORE.—A silicated nickel ore free from cobalt, antimony, and arsenic, similar to that of New Caledonia, has been discovered in the neighborhood of Malaga, Spain. A sample of the mineral gave 3·96 per cent. of nickel.

OHIO COAL LANDS.—It is said that Cleveland and Akron capitalists are buying up coal lands along the line of the Marietta, Pittsburg and Cleveland Road, in expectation of its consolidation with the Tuscarawas Valley Road.

THE CARBONDALE *Advance* says the miners of the Delaware & Hudson Co. in that vicinity have not averaged more than twelve dollars a month for the past eighteen months. This indeed is a pitiful small income, and scanty pay for the hard and perilous labor performed.

A STRIKE IMMINENT AMONG ENGLISH COAL MINERS.—LONDON, Aug. 17.—The *Standard* says a strike is imminent throughout the entire South Staffordshire coal field, in consequence of the masters' endeavor to increase the working hours. To-morrow the masters will give notice to terminate all contracts.

THE STRIKE AT SHAMOKIN.—The hands to the number of from 1,500 to 1,800 employed by the Mineral Railroad and Mining Company, who operate four of the largest collieries in the Shamokin Region, viz.: the Cameron, Hickory Swamp, Luke Fidler and Hickory Ridge, are still on a strike for an advance in wages. The company positively refuse to give the advance, and the men are determined to stand out till their demand is granted.

COMPARATIVE VALUES OF PACIFIC COAST COALS.—By a late order of the War Department (U. S.) it was decreed that a cord of oak wood, 8 ft. x 4 ft. x 4 ft., is equal to:

1,800 lb. Nanaimo (V. I.) coal.	2,500 lb. Rocky Mountain (U. S.) coal.
2,200 " Bellingham Bay (U. S.) coal.	2,600 " Coos do
2,400 " Seattle do	2,600 " Mount Diablo do

NO GOLD IN THE BIG HORN HILLS.—DEADWOOD, D. T., Aug. 16.—The Big Horn party has returned. A thorough prospect of the entire range failed to secure the slightest indication of gold. Senator Spencer has assumed the role of a jumper, and attempted to-day to take possession of Keet's quartz mine, one of the richest in the hills, and one that for two weeks has kept a hundred stamps at work night and day crushing ore. Legal redress will be sought.

COMPOSITION AND ORIGIN OF THE DIAMOND SAND OF TOIT'S PAN IN SOUTH AFRICA.—In a recent report on a memoir by M. Stanislas Meunier on this subject MM. Des Cloizeaux and Daubree, whilst admitting that the diamond-rock has been raised up from below, do not consider that its elevation is due to volcanic action. They think that each of the rocks found filling the pans has been torn from a distinct bed, and conveyed separately to the place where they are now found in mixture. Hence these sands belong to the same class as the granitic sands found interposed among stratified deposits.

ON VAPOR DENSITIES.—In the *Compt. Rend.*, lxxxiii., Messrs. Troost and Hautefeuille record some experiments made by them to discover the error which occurs in determining the vapor-density of substances by the application of the law of Dalton on the tension of mixed gases, and Boyle and Gay-Lussac's laws, as applied to a mixture of the vapor examined either with air or with some other vapor. They examined a mixture of carbon and silicium chlorides, using a modified form of Gay-Lussac's vapor-density apparatus. On increasing the amount of carbon chloride, the tension of the silicium chloride diminished. The vapor-density of silicium chloride alone varied from 5·94 to 6·0, but in presence of carbon chloride was found to increase from 6·27 to 8·2.

NICKEL ORES OF NEW CALEDONIA.—New Caledonia has exported about 2,000 tons of nickel since the discovery of nickel ore at Mont d'Or in 1874. The ore is found in various localities, but the hopes of an extensive product, raised by its wide distribution, has not been realized. According to the account the product so far has been distributed as follows: The Boa Kaine sends away from Canala to Germany every month about 125 tons; the Bel Air mines at Ouailon have raised 1,200, of which 160 tons were sent to London at the beginning of 1875. In April, 1876, 550 tons were shipped for Havre, and in May, 430 tons. The remaining mines, all told, including the Fatma mines, have not sent away more than an aggregate of 100 tons. The use of nickel in manufacturing is daily increasing. Its application to exposed metal work is most extensive, and its fine luster, durability, and cheapness increase its uses for ornamental purposes.

A PRODUCTIVE MINE—2,500 TONS A DAY.—The Republic iron mine, of Lake Superior, is situated on the east shore of the Michigamme River. At this point the river widens out, forming a beautiful little bay (called Smith's Bay), in the shape of a crescent, around which the ore belt of the Republic is found. The vein of ore thus far developed is now opened for a distance of over 4,000 feet, more than 2,000 feet of which is continuous workings. The mineral belt on which the mine is being worked is 445 feet in width, and presents some of the most peculiar formations to be found in any location in the district. The shipments of this company frequently reach 1,000 tons of ore per day. Recently there were loaded and shipped from the mine in one day 306 cars of ore, equal to 2,528 tons of ore, and the freight on which to Marquette was something over $2,500. The product of this mine since it was opened in 1871 and up to the 11th of July has aggregated over 600,000 tons.

ELECTRICAL SELECTION.—At a recent meeting of the Physical Society, Dr. Guthrie and Mr. Akroyd communicated a paper on this subject. When a metal or other body is rubbed against some non-conducting substance like caoutchouc, electricity is developed, and the track of the metal, although invisible, may be readily made evident by sprinkling on the caoutchouc a mixture of red-lead and sulphur. This sieving, as is well known, imparts negative electricity to the sulphur and positive to the red-lead; hence, by a kind of electrical selection, that particular ingredient of the mixture is drawn to the metal track which possesses the opposite kind of electricity. Iron, for example, when rubbed against caoutchouc generates negative electricity, and, after sprinkling the powder, the iron track is revealed by the marked collection thereon of red-lead. A list of mixtures was given which may be used instead of the above, and it was shown that electrical selection may prove of use (1) in making an electrical diagnosis of the metals, (2) in certain experiments where the quadrant electrometer is objectionable, and (3) in teaching, where this instrument is often unavailable on account of its cost.

THE COAL TRADE IN GERMANY.—The iron and coal industries in Germany are, according to the *Frankfurter Zeitung*, going from bad to worse. From Upper Silesia it is announced that the forced sales of coal at the pit are every day on the increase, and these sales necessarily tend still further to lower the already greatly depressed price of coal. At one of these enforced sales, for instance, of 4,000 tons from a single pit, the coal went to the highest bidder at a price nearly 43 per cent. lower than the average price in Prussia during 1872, and 54 per cent. less than the average price during 1874. Since that year the price has steadily declined, but even in 1876 it averaged in Prussia about 25 and in Silesia about 15 per cent. higher than the present rate. Variations as great are reported in the price of iron in the same district. The present price, in spite of a considerable fall in wages, often fails, it is stated, to cover the cost of production. From the balance of accounts shown from a number of collieries it appears that things are not much better in other parts of the country. As a natural consequence of this state of things, it might be expected that production in mining industries would be for a time considerably restricted. On the contrary, however, the supply of coal was last year considerably increased; and has not, so far as yet appears, sensibly diminished during the present year. The lesson of the crisis, which has been the inevitable consequence of the over-production of the years following the war, has not yet been learnt by the German producers, and they are content to look idly for help from the State, or from some unforeseen change in circumstances.—*Financial Chronicle.*

ASSAY DEPARTMENT OF THE ENGINEERING AND MINING JOURNAL.

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ANSWERS.

New York Office:

L. H., New York.—"What is the present market value of nickel ore per unit contained in the ore?"

The only large dealer in nickel in this country is Mr. Joseph Wharton, whose mines are in Lancaster County, Pa., and we are indebted to his courtesy for the following interesting information regarding the present condition of the nickel trade:

"No satisfactory answer can be given to this question. Just now it has no value, for pure nickel has but a nominal value, and is unsalable, except in trifling quantities at about $1·70 currency per lb., which is but little over one-half of last year's price.

"The entire consumption of nickel in America being in good years but about 100,000 lb. per annum, and this year probably not over 40,000 lb., it is clear that the delusive notions which have become prevalent that one has only to discover a nickel deposit to realize a speedy fortune can only lead to disappointment.

"At best, and even if a large market existed, nickel ore could only have value when existing in large quantity of good quality, and near to fuel, fluxes and market. Should any really great deposit be found, the price would fall, as has in fact been the result from the New Caledonia discoveries.

"The mine in Lancaster County, Pa., can produce with perfect ease double as much nickel as this country consumes, and it has all the advantages above named. It has, however, been found necessary to dismiss two-thirds of the miners there, and the mines may possibly have to be closed entirely for want of a market."

ASSAYS.

XXXVII. G. C. W., New York.—No. 1. Silver, 36·31 oz. No. 2. Silver, 22·34 oz. No. 3. Silver, 73·83 oz.

XLVII. J. M. T.—Silver, 0·1 oz.; gold, none.

XLIX. L. H., New York.—"What is the market value of zincblende in New York harbor?"

There is no market for zincblende at this point, there being really but one purchaser, and he, having a mine capable of supplying all the ore he needs, is not in the market. At St. Louis and La Salle, blende containing 60 per cent. metal is worth about $25 per ton, delivered at the works.

LVI. B. G. NOBLE, New York.—Sample contains silver, 48·3 oz. per ton; gold, 9·78 oz. per ton.

LVII. S. B., Detroit, Mich.—No. 1. Silver, 2·23 oz. No. 2. Will be given in our next.

LVIII. L. P. BRIGHT, Chattanooga, Tenn.—Quartz yields gold, 2·23 oz. per ton.

LIX. L. H., New York.—Stamp stuff contains no gold or silver.

Denver Office:

ANSWERS.

137. E. F. R., Springdale, Colo.—The sample you send, calling it green chlorate of gold, is a mineral known as chlorite, containing in itself no gold of any kind, though the blowpipe reveals some specks of telluride of gold and silver mechanically mixed with it, in the same way as gold is disseminated through quartz. Whoever named the mineral "chlorate of gold" was ignorant of the subject. There is no such compound in nature. We noticed a communication in one of the Denver dailies from Springdale referring to the discovery, and speaking of two kinds of chlorates. If the minerals had been sent to the learned Georgetown *savant* who about a year ago published a list of the Magnolia tellurides, the statements made could hardly have been more confusing. Gold is a metal which disdains a union with almost every other element. Even when it does unite, the compound is a very unstable one, and in the glorious freedom of nature's laboratory opportunity is generally afforded the metal to free itself. It is a pretty safe thing to assume that gold when found is free, and not in such a complicated condition as a chlorate. Those who have made the subject a study are by no means sure that the substances known as tellurides of gold are anything more than mechanical compounds.

138. H. FAULKNER, Tintic, Utah.—Sample consisted almost wholly of malachite, or green carbonate of copper; trace of gold.

139. E. F. ALLEN, Butte, Montana.—Manganese exists in the ore you send, as the black oxide. It is not volatile, and you cannot get rid of it by roasting as you can antimony, arsenic, sulphur, etc. The question you ask is one that can be answered by an educated and *practical* mill man better than by us. Moreover, you do not give enough data upon which to make a study of the question. Advise us on these points. Do pure samples of oxide of manganese contain any silver? What is the effect produced in the amalgamation pans when there is an abundance of this metal present? Do you require more salt than otherwise? By informing us on these points we will be able to study the question better. Send also an average specimen of the ore as it goes to the mill. It may contain other elements more troublesome than manganese, which at first sight does not appear to us to be capable of giving any trouble.

140. F. L. BROWN, Deadwood, Wyoming.—The nuggets sent are nodules of stream tin, more commonly known as toad's-eye tin. This mineral has been found at several points in the ranges surrounding the upper Missouri River, and in time we think tin mining will assume some importance as a branch of our natural resources. The origin of "toad's-eye" is undoubtedly in veins, which proper search will reveal. These are not necessarily fissure veins, however, and, in fact, are more likely to be irregular and unreliable "floor" deposits. Many hundred tons of stream tin are annually washed out of creek bottoms at the Dutch banca mines in the East Indies. It will pay to save all these nodules you meet with, and even to prospect for more. A good course of tin in Deadwood will pay nearly as well as gold.

141. E. F. MORRISON.—Sample is petroleum shale, containing a fair quantity of rock oil. Cannot speak of its quality without more extensive examination.

ASSAYS AND ANALYSES.

142. JOHN WARD, Rosita, Colo.—Silver, 82 ounces.
143. H. F. B., Howardsville, Colo.—Silver, 418 ounces; 23 per cent. lead.
144. C. C. M., Silverton, Colo.—Silver, 334 ounces.
145. GEORGE STEVENS, Central, Colo.—Silver, 8 ounces; gold, 2¼ ounces.
146. M. A. ATWOOD, Denver, Colo.—Silver, 241 ounces; copper, 12 per cent.
147. D. A. W., Hot Sulphur Springs, Colo.—Silver, 68 oz.; lead, 32 per cent.
148 R. B. W., Santa Fe, New Mexico.—(1.) Gold, 1¼ oz.; silver, 18½ oz. (2.) Gold, 1¼ oz.; silver, 14 oz.
149. L. A. H., Bingham, Utah.—Silver, 32 oz.; lead, 46 per cent.
150. MCFADDEN, Tintic, Utah.—Silver, 64 oz.; gold, trace; copper, 16 per cent.
151. JAMES ELLIS, Laramie, Wyoming.—Copper, 48 per cent.; trace silver.
152. WM. R. DUFFEE, Evanston, Wyoming.—Silver, 101 oz.; no gold.
153. E. COCHRANE, Deadwood, Wyoming.—Gold, 1¾ oz.
154. E. N. KING, Deadwood, Wyoming.—Gold, 12 oz.
155. H. CALLAHAN, Deadwood, Wyoming.—Gold, 21¼ oz.
156. ALEX. FORBES, Phillipsburg, Montana.—Silver, 138 oz.; lead, 16 per cent.
157. H. L., Helena, Montana.—Silver, 948 oz.; copper, 36 per cent.
158. By a piece of negligence on our part the samples sent us from Darling, Montana, were laid aside, and only found too late for report in this issue. We ask indulgence till our "next."
159. Silver ore from Hall Valley, Colo.—Percentage of quartz, 21·14; barite, 41·64; lead, 14·00; copper, 6·00; antimony, 3.10; sulphur, 12·40; total, 98·28 per cent.

STATISTICS OF COAL PRODUCTION.

This is the only Report published that gives full and accurate returns of the production of our Anthracite mines.

Comparative Statement for the week ending Aug. 11, and years from Jan 1st.

Tons of 2,240 lb.	1877.		1876.	
	Week.	Year.	Week.	Year.
Wyoming Region.				
D. & H. Canal Co.	....	1,283,899	41,008	1,062,234
D. L. & W. RR. Co.	....	1,306,199	41,631	840,877
Penn. Coal Co.	14,497	654,877	21,993	563,837
L. V. RR. Co.	7,672	582,789	25,694	514,934
P. & N. Y. RR. Co.	....	32,728	673	14,676
C. RR. of N. J.	....	857,206	14,200	680,950
Penn. Canal Co.	396	217,206	20,897	211,429
	22,565	4,934,904	169,096	3,918,937
Lehigh Region.				
L. V. RR. Co.	81,681	1,792,557	107,436	1,448,283
C. RR. of N. J.	18,237	895,095	44,729	704,038
D. H. & W. B. RR.	1,017	9,877	601	26,332
	190,935	2,697,529	152,766	2,178,653
Schuylkill Region.				
P. & R. RR. Co.	144,702	3,662,526	93,750	2,391,109
Shamokin & Lykens Val.	12,368	372,561	9,310	498,720
	157,070	4,035,087	103,060	2,889,829
Sullivan Region.				
Sul. & Erie RR. Co.	514	6,289	165	26,805
Total	281,084	11,673,809	425,087	9,014,224
Increase	....	2,658,585	....	....
Decrease	144,003	....	....	....

The above table does not include the amount of coal consumed and sold at the mines, which is about five per cent of the whole production.

Receipts and shipments of coal at Chicago, Ill., for the week ending Aug. 11, and year from January 1:

	Week. Tons.	Year. Tons.
Receipts	25,710	918,825
Shipments	6,086	232,719

The shipments of coal at Cleveland, Ohio, for the week ending Aug. 11 were as follows: shipped coastwise, 6,134 tons; total for year, 141 388 tons; foreign shipments, 1,302 tons; total for year, 48,856. Total of coastwise and foreign shipments for week, 7,436; for year, 182,808.

The Exports of Coal from Baltimore for the week ending Aug. 10 were 610 tons, and since January 1st, 20,937 tons as against 22.035 tons for the corresponding time in 1876.

Receipts of Coal at Boston, for the week ending Aug. 10 and years from Jan. 1.

Tons of 2,240 lb.	1877.		1876.	
	Week.	Year.	Week.	Year.
From				
Alexandria and Georgetown	460	40,564	2,630	83,788
Philadelphia	37,668	386,965	11,441	616,153
Baltimore	1,400	79,751	1,933	138,755
Other places	9,285	176,594	4,915	285,690
Great Britain	...	1,353	...	4,722
Nova Scotia	1,611	16,109	....	22.166
Total	50,424	701,336	20,919	1,151,274

Perth Amboy business:

	Tons.
Received for the week	23,041
Shipped for the week	34,104
On hand Aug. 11	86,628

The decrease of shipments of Cumberland Coal over the Cumberland Branch, and Cumberland and Pennrylvana, Railroads amounts to 210,284 tons, as compared with the corresponding period in 1876.

Shipments of coal at Pictou, N.S., for the week ending Aug. 11 and year from January 1:

	Week.	Year
To Canada	1,527	21,933
" United States	3,835	14,978
" Other Provinces	3,339	30,905
Total tons	8,701	67.816

Belvidere Delaware RR. report for week ending Aug. 11.	Week	Year. 1877.	Year. 1876.
Coal for shipment at Coal Port (Trenton)	160	12,446	151,018
" " " " South Amboy	4,880	355,843	260,322
Coal for distribution	4,718	103,036	90,615
Coal for Company's use	1,420	44,013	36,656

The production of Bituminous Coal for the week ending Aug. 11 was as follows:

Tons of 2,000 lb., except where otherwise designated.

Cumberland Region, Md.. Tons of 2,240 lb.	Week, Tons.	Year, Tons.
	....	....
Barclay Region, Pa. Barclay RR. tons of 2,240 lb	10,238	200,047
Broad Top Region, Pa.		
Huntingdon and Broad Top RR.	3,724	81,874
*East Broad Top	1,269	30,405
Clearfield Region, Pa.		
*Snow Shoe	588	24,275
*Tyrone and Clearfield	28,156	757,272
Allegheny Region, Pa.		
*Pennsylvania RR.	3,047	112,458
Pittsburg Region, Pa.		
*West Penn. RR.	2,985	107,288
*Southwest Penn. RR.	398	22,949
*Penn & Westmoreland gas coal, Pa. RR.	4,308	404,053
*Pennsylvania RR.	460	203,731

*For week ending Aug. 6.

The Production of Coke for week ending Aug. 6.

Tons of 2,000 lb.	Week.	Year
West Penn. RR.	651	35,599
Southwest Penn. RR.	8 697	349,289
Penn & Westmoreland Region, Penn. RR.	147	42,507
Pittsburg, Penn. RR.	873	70,475
Total.	10,368	497,870

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Aug. 17, 1877.

Anthracite.

Such companies as have been offering coal for sale have had an active week, but it is very evident that if all were sending to market their usual quantities of coal the division of business would, at the prevailing prices, show a very quiet market. There are some dealers and manufacturers who have withheld purchases in anticipation of lower prices who are buying coal to supply their immediate requirements, while some of the far northern and northwestern buyers are a little anxious to secure their full complement of coal, that it may be shipped under advantageous rates of freight.

But little can be said as to the future of prices and production. The strikers in the Wyoming region show as much determination as at any previous time since the beginning of the present strike. No further riots or destruction of property have taken place; yet the miners, for a time, prevented the working of pumps, driving the engineers and firemen from their posts and drawing the fires. The latest reports from this region, however, state that the pumps are all working again. Yesterday all the miners in the Hazleton and Beaver Meadow regions, excepting those at Hazleton, Lattimer, Hollywood, Buck Mountain, Cross Creek, Woodside, and Humboldt, struck for an advance of wages. It is too early to judge of the probable result of this strike, although the opinions of the operators are pretty evenly divided as to whether the men will all resume work or stop in a few days.

The production of anthracite coal last week was but 281,084 tons, as compared with 425,087 tons for the corresponding week of last year. The production for the week ending August 4 was 256,696 tons, and although the week ending August 11 shows an increase, yet the total appears but small as compared with previous weeks of this year. However, the output of last week was equal to the average weekly production from January 1, 1876, to the end of August, or when the combination broke. If the present supply, therefore, can be continued, there need be no fear of a great scarcity of coal for some time to come. The total production since January 1 has been 11,673,809 tons, as compared with 9,014,224 tons for the corresponding period of 1876, showing an increase this year of 2,658,585 tons.

Bituminous.

The strikes of the boatmen on the Chesapeake & Ohio Canal, and of the miners in the Cumberland region still continue. On Wednesday the New Central Company gave its miners the advance demanded, and it is anticipated that the other companies will follow the example before a week has passed. The boatmen have not openly acknowledged themselves defeated; but now that the blockade on the canal has been opened, it is said that many of the boatmen are willing to enter into independent arrangements.

The Clearfield mines have not been working steadily, all of them having lost some time by strikes. The labor question is still very much unsettled in this region, and the advance given to the Cumberland miners is not likely to lessen the complications at the Clearfield mines.

On the 11th inst. the miners at Goss Run made a demand for an advance of 15 cents per ton for mining, with a threat to stop work on the 14th inst. if the demand were not granted. But no advance was made, and the men still continue to work, although they now say that they will stop next Wednesday, if their demands be not granted.

From January 1 to August 11, the Cumberland region had lost over 210,000 tons, as compared with the production of the like period of 1876. The Clearfield region, on the contrary, shows for the same periods an increased production, amounting to over 65,000 tons.

New York.

Wholesale Prices of Anthracite Coal f. o. b. at the Tide Water Shipping Ports per ton of 2240lb.

Prices being merely nominal this week we omit them entirely.

Wholesale Prices of Bituminous Coal.

Domestic Gas Coals.

Per ton of 2240 lb.	At the Shipping Ports.	Alongside in New York.
Westmoreland and Penn. at Greenwich, Philadelphia	$4 50	$5 50
" at S. Amboy.	5 00	5 50
Red Bank Cannel Pa. at Philadelphia	8 00	8 50
Youghiogheny, Waverly Co., at Balt.	4 50	5 65
Despard, West Va.	4 50	6 00
Murphy Run, West Va., at Baltimore	4 50	5 85
Fairmount, West Va., " "	4 40	5 70
Newburg Orrel, Md. " "	4 50	6 00
Cannelton Cannel, West Va.	....	10 00
" Splint " at Richmond.	6 00	7 00
" Gas Coal at Richmond	4 00	5 65
Peytona Cannel W. Va at Richmond	....	10 00

Manufacturing and Steam Coals.

These are only nominal.

Foreign Gas Coals.

	Sterling.	Am. cur'cy
Newcastle, at Newcastle-on-Tyne	8/6@10/6	5 50@ 6 00
Liverpool House Orrel, at Liverpool	25/	13 00
Ince Hall Cannel "	35/6	18 00
" Gas Cannel "	25/6	10@10 50
Scotch Gas Cannel, at Glasgow, nominal,	25/	7 50
	Gold.	
Block House, at Cow Bay, N. S.	1 75	4 50
Caledonia, at Port Caledonia	1 50	4 25
Glace Bay, at Glace Bay	1 60	4 25
Lingan, at Lingan Bay	1 75	....
International mines at Sydney	1 75	4 50
Pictou, Vale mines, at Pictou	2 15	4 75

Retail Prices in New York.

Anthracite.

Per 2000 lbs.	Grate and Egg.	Stove.	Chestnut.
Pittston coal, in yard	$3 75	$4 00	$3 75
Lackawanna coal, delivered	4 00	4 00	4 00
Wilkes-Barre, delivered	4 25	4 50	4 00
Lehigh and Locust Mountain, del'd	4 25	4 50	4 00
Schuylkill Red Ash, del'd	5 25	5 50	4 75

The Cost of delivery for Pittston coal ranges from 40cts. to $1 10 per ton, according to distance from the yard.

Bituminous.

Liverpool House Orrel, delivered, per ton of 2000 lb	$18 00
Liverpool House Cannel " " "	18 00
American " " "	11 00
Cannelton Block, or splint, " " "	10 00
American Orrel " " "	11 00
Red Bank Cannel " " "	9 00
Cumberland " " "	7 00

Baltimore. Aug. 15, 1877.

pecially reported by Messrs. E. STABLER Jr., & Co.

Wholesale Prices.

AFLOAT BY CARGO PER TON OF 2,240 LB.

Lump and Steamboat	$3 40	Stove	$3 65
Broken	3 25	Chestnut	3 40
Egg	3 30		

In cars in dealers' yards or on switch, 15c. per ton additional.

Lykens Valley Red Ash.

AFLOAT BY CARGO.		BY RAIL IN CARS.	
Broken	$3 98	Broken	$4 15
Egg	4 13	Egg	4 30
Stove	4 13	Stove	4 30
Chestnut	3 36	Chestnut	3 80

From wharf or yard to the trade, 50c. per ton additional.

Bituminous.

George's Creek, f. o. b. at Locust Point.	$3 50 to $3 60		
Clearfield, " Canton	3 30 to	3 40	

Boston. Aug. 11, 1877.

COAL.—The market is dull and prices rather favor the buyer at the close. The prospect now is that the strikes will not last much longer. Stocks are ample for all requirements. Pending the settlement of the labor troubles in the Wyoming region, the Philadelphia & Reading continues to make a very heavy output. With its overflow, the company is controlling prices of anthracite in New York and at the West. Mr. Gowen has issued a manifesto to his men, stating hat he would not stop the collieries for a month when the other companies wished to do so, simply to keep the men at work, and now he expects them to remember this action, and not strike. This does not look much like a combination.

The arrivals of Nova Scotia coal have been considerable, as follows: *W. F. Green*, Glace Bay, 340 tons; *F. H. Odiorne*, Lingan, 452 tons; *Harriet Chase*, Dorchester, N. B., 174 tons; *Matthew Kinney*, Port Caledonia, 200 tons; *Harmony*, Sydney, 145 tons; *Mary Elizabeth*, Port Caledonia, 170 tons—a total of 1141 tons. All of this had been previously contracted for by the gas companies.

We quote Boston wholesale prices as follows:

Anthracite, broken	$4 25@4 40	Cannel, English	$16 00
do. egg	4 25@4 40	do. Buckeye	10 00
do. stove	4 50	Lingan	4 00
Cumberland	4 75	Pictou	5 00
Clearfield	4 50	Penn	5 50
Westmoreland	6 00	Youghiogheny	4 50@5 50
Caledonia	4 00		

—*Commercial Bulletin.*

Buffalo. Aug. 15, 1877.

Specially reported by LEE & LOOMIS.

	Lump.	Run of Mine.	Nut.	Slack.
Connellsville Coke	$5 10	....	.....	....
Brookfield Coal	4 00	....	.....	....
Brier Hill	3 85	....	2 85	....
Youghiogheny	4 00	....	.....	....
Monterey	3 25	3 00	.....	2 25
Catfish			.....	
Stoneboro'	....	.....	2 75	2 25
		broken		
Sterling Cannel	5 00	4 75	4 50	....
			nut & slack	
Reynoldsville	3 25	3 00	1 90	2 25
Buffalo Coal Company	....	3 00	.....	2 25

The Scranton, Wilkes-Barre, Plymouth, Shamokin, and Delaware and Hudson (Lackawanna) are offered for the present at the following prices per ton of 2,000 lb.:

Delivered at	Elmira.	Ithaca.	Syracuse.	Rochester	
	Afloat.	Afloat.	Afloat.	Afloat.	Ret. Del.
Lump	....	....	....	....	....
Grate	$3 50	$2 85	$2 85	$3 10	$4 53
Egg	3 50	2 95	2 95	3 20	4 45
Stove	3 75	3 20	3 20	3 45	4 70
Nut	3 75	3 10	3 00	3 25	4 50

Delivered at	Oswego	Erie.	Buffalo.		
	F. O. B.	F. O. B.	Afloat.	F. O. B.	Ret. Del.
Lump	....	....	....	....	....
Grate	$3 25	$3 75	$3 35	$3 75	$4 60
Egg	3 35	3 85	3 45	3 85	4 70
Stove	3 60	4 10	3 70	4 10	4 95
Nut	3 40	3 90	3 50	3 90	4 75

Cost of coal from Erie, Oswego, Sodus Point, or Charlotte for Western market, same as if shipped from Buffalo. Terms cash. All payments to be made in New York city funds:

Chicago, Ill. Aug 8, 1877.

Specially reported by Messrs. RENO & LITTLE.

The following are the prices to-day for coal:

Lackawanna Stove	$6 50	Erie and Brier Hill	$5 50
" Chestnut	6 50	Wilmington and Ill.	3 50@4 00
" " Grate and Egg.	6 25	Blossburgh	6 50

The Pennsylvania Coal Company is selling at 50c. under the above prices.

Cincinnati, O. Aug. 15, 1877.

Specially reported by the Consolidated Coal and Mining Co.

	AFLOAT. Per bush.	AFLOAT. per ton 2,000 lb.	DELIVERED. Per bush.	DELIVERED. per ton 2,000 lb.
Youghiogheny lump	7c.	$1 94	10c.	....
" nut	5½c.	1 53	9c.	....
" slack	4½c.	1 25	8c.	....
Camden, W. Va	5½c.	1 53	9c.	....
Peytona Cannel	16c.	4 57	20c.	....
Connellsville coke	7c.	3 ..	10c.	....
Youghiogheny coke	5c.	2 64	.c.	...
Crushed coke	..	....	1.c.	...
Anthracite, Wilkes-Barre or Lehigh by car load				$
" " "			delivered	7 00@7 50

ANTHRACITE.

Wilkes-Barre and Lackawanna (all sizes) ..... $7 50 per ton
Lehigh, retail ..... 8 50 per ton

Cleveland, O. Aug 15, 1877.

Specially reported by Messrs. LAMBIE & BATES.
Per ton of 2000 lbs. f. o. b. vessels.

WHOLESALE.

Brier Hill (Church Hill)	3 50
" " No. 2 Grades	3 35@3 40
Straitsville Lower Vein	2 80
Hocking Valley	2 80
Massillon	2 85
Mineral Ridge (Cambria Mine)	2 85
Tuscarawas Valley	2 30
Columbiana	2 30
Nut coal, various grades	2 20@2 50
Screenings, " "	1 35@1 75
Youghiogheny gas coals	3 75@3 85

The following are the prices established by the Coal Exchange until further notice:

RETAIL TRADE.

	1 to 10 tons. upw'd.	10 tons.
Brier Hill lump	$4 25	$4 00
" " nut	3 75	3 50
Massillon and Mineral Ridge lump	4 00	3 70
" " " " nut	3 75	3 55
Straitsville Lower Vein, Hocking & Shawnee l'p.	3 60	3 35
" " " " nut	3 40	3 15
Del Carbo lump	3 75	3 50
" " nut	3 50	3 25
Rich Hill lump	3 50	3 35
" " nut	3 25	3 00
Columbiana, lump	3 25	3 00
" nut	2 75	2 50
Lacka'a., Wilkesbarre and Pittston egg and grate,	7 00	6 75
" " " stove	7 50	7 25
" " " chestnut	7 00	7 25

Lehigh $1 25 per ton higher.
All sales to be strictly cash with order or C. O. D.

Hamilton, Ont. Aug. 15, 1877.

Specially reported by H. BARNARD.

I beg to hand you state of our market corrected to date.

Grate	$4 50	Lehigh Lump	$5 30
Egg	4 50	Brier Hill	5 00
Stove	4 75	Massillon	4 50
Nut	4 75	Blossburgh	5 50

Indianapolis, Ind. Aug. 15, 1877.

Specially reported by Messrs. COBB & BRANHAM.
Wholesale on board cars, and retail delivered to consumers.

BITUMINOUS.

White River, per ton	$ 2 50	Peytona Cannel, per ton	$ 5 75
Brazil Block, "	2 25	Indiana Cannel	4 50
Highland, grate, "	2 00	Hocking Valley	4 25
Block coal, nut, per car.	18 00	Youghiogheny	4 50
Highland " "	18 00	Blossburg (smithing)	6 50
Block Slack "	17 00	Piedmont "	6 50
		Gas Cake, per bushel	10

ANTHRACITE (Lackawanna and Wilkes-Barre).

Broken	$7 60	Nut	$6 70
Egg	7 60	Stove	6 70

Lehigh Anthracite.

Broken	$7 60	Nut	$7 30
Egg	7 60	Stove	7 70

Retail, per bushel, delivered.

Sand Creek	13c.	Block Nut, steam	8c.
White River	13	" Slack, "	0
Brazil Block	13	Virginia Cannel	27
Highland Grate	11	Youghiogheny	16
Block Nut, domestic use.	11	Blossburg	26
Highland Nut, " "	11	Piedmont	26
" " steam	8		

GAS COKE (measured.)

Crushed	14c.	Lump	12c

Louisville, Ky. Aug. 15, 1877.

Specially reported by Messrs. BYRNES & SPEED.

Below find latest quotations:

WHOLESALE.

Pittsburg	7c. per bush.	Pine Hill	8½c. per bush.
Raymond City	7c. "	Kentucky	7½c. "

RETAIL.

Pittsburg	11c. per bush.	Pine Hill	11c. per bush.
Raymond City	10c. "	Kentucky	10c. "
Indiana Cannel	17c. "	Honeywell Can'l.	19c. "
City Make Coke.	8c. "	Anthracite $8 50 to $9 per ton.	

Montreal. Aug. 15, 1877.

Specially reported by Messrs. ROBERT C. ADAMS & Co.

Scotch Steam	$4 25	Cape Breton Steam	$3 50
Pictou	4 00	Newcastle Smiths	5 00

Anthracite at retail, per 2,000 lb. delivered.

Egg	$5 00	Chestnut	$5 00
Stove	5 25		

Milwaukee, Wis. Aug. 15, 1877.

Specially reported by Messrs. R. P. ELMORE & Co.

Retail price per ton of 2,000 lb.

Anthracite, egg, chestnut, and stove $5 50

Wholesale price per ton of 2,000 lb.

Lehigh lump	$6 50	Connellsville coke on RR. track	$7 25

New Orleans, La. Aug. 8, 1877.

Specially reported by Messrs. C. A. MILTENBERGER & Co.

PITTSBURG COAL.

At wholesale (by boat load)	35c. per bbl.
To steamboats	40c. "
" manufactories	50c. "
" families	65c. "
In hhds. (for shipment)	$6 00 per hhd.

ANTHRACITE COAL.

At wholesale	$7 00 to 8 00 per ton.
" retail	11 00 "

VIRGINIA CANNEL COAL.

At retail	$1 00 per bbl.

ST. BERNARD (KY.) COAL.

To steamboats	40c. "
" families	55c. "

Pittston, Pa. Aug. 15, 1877.

Pennsylvania Coal Company's Coal in yard, ton of 2000 lb.

Retail.

Lump, Egg and Stove	$2 25
Chestnut	2 00
Pea	1 00

Delivered, fifty cents per ton additional

Richmond, Va. Aug. 15, 1877.

Specially reported by S. H. HAWES, Dealer in Coal.

Per ton of 2,240 lb., f. o. b.

Kanawha Cannel	$9 00	New River Bituminous	$3 30
Coalburg Splint	5 70	Clover Hill Coal	3 00
Lewiston "	5 70	James River Bitum	3 50
Kanawha Gas Coal	4 90	" " Carbonite	5 25

Sandusky, O. Aug 15, 1877.

Specially reported by C. E. BLACK, Agt. Con. Coal & Mg. Co.

We quote coal on cars at Sandusky, as follows:

Per ton of 2,000 lbs.

Anthracite.

	Grate.	Egg.	Stove.	Chestnut
Wilkes-Barre	$4 80	$4 80	$4 80	$4 80
Lackawanna	4 80	4 80	4 80	4 80
Lehigh	5 80	5 80	5 80	5 80

Bituminous.

Massillon	$2 90	Straitsville	$2 65
Del Carbo	2 65	Shawnee	2 65
Hocking Valley	2 65	Blossburg	4 75

Prices f. o. b. vessel for soft coal, 15c. advance on car prices. Prices retailed delivered 50c. above car prices.

St. Louis, Mo. Aug. 15, 1877.

Reported by JAS. J. SYLVESTER, Secretary of the Anthracite Coal Association.

Retail prices, delivered. Ton of 2,000 lb.

ANTHRACITE.

Lackawanna	$8 00@8 50	Schuylkill	8 00@ 8 50
Wilkes-Barre	8 00@8 50	Lehigh	9 00@ 9 50

BITUMINOUS.

Blossburg	9 00	Big Muddy	3 00
Pittsburg	4 50	Illinois Coals	2 50@3 00
Indiana Block	4 00	Connellsville Coke.	6 50

San Francisco, Cal.

From the *Commercial Herald* of Aug. 9, 1877.

COAL—Imports from January 1 to July 1:

	Tons.		Tons.
Anthracite	9,602	Vancouver Island	43,705
Australian	28,390	Rocky Mountain	113
Coos Bay	17,079	Saghalien	40
Cumberland	7,845	Seattle	55,051
English	40,734	Bellingham Bay	6,200
Chili	3,951	Ione, Cal.	764
Mt. Diablo,	39,995		

We have nothing of an encouraging character to report. There is no life nor animation observable for any description. Stocks are large and supplies of Seattle and Nanaimo are very liberal, and these steam supplies are taken promptly by the steamship companies, railroads, and others requiring large quantities. The cargo price of this screened coal is $8, while Wellington and other household parcels command an advance on this price. The last spot cargo sale of Australian (Wallsend) coming to our knowledge was at $9.25. The quotations given are largely nominal. Egg size Pacific Coast bituminous is selling by the cargo at $5@5.50 per ton, while coarse kinds of Seattle, Nanaimo, Wellington, Coos Bay and Bellingham Bay screened may be quoted at $8@8.50 per ton, according to quantity. Black Diamond and other California Mt. Diablo coals sell at $5.75@7.75 for fine and coarse respectively. Prices of Scotch and English Steam to arrive may now be quoted at $8.50@9; West Hartley $9@9.50.

Toledo, Ohio. Aug. 13, 1877.

Specially reported by Messrs. GOSLINE & BARBOUR

We report prices of coal on cars at Toledo as follows:

Ton of 2,000 lb.

Straitsville lump	$2 70	Hocking Valley nut	2 30
" nut	2 30	Massillon lump	3 00
Shawnee lump	2 70	Cumberland	5 40
" nut	2 30	Blossburg	5 40
Hocking Valley lump	2 70		

Prices of hard coal on cars at Toledo are as follows:

	Grate.	Egg.	Stove.	Chestnut
Pittston	$5 35	$5 35	$5 60	$5 50
Wilkes-Barre	5 35	5 35	5 60	5 50
Lackawanna	5 35	5 35	5 60	5 50
Lehigh	5 95	5 95	6 20	6 10

For retail delivery in city the prices are as follows: Stove and chestnut $6.25; grate and egg, $6.00 per ton; Lehigh, 75c. per ton additional.

Prices soft coal f. o. b. vessel for Lake shipments will be from 15 to 20c. per ton more than prices on cars.

OFFICE OF THE PA. & N. Y. R. R. Co.,
Bethlehem, Aug. 6, 1877.

On and after this date the rate on coal for Buffalo, for Watkins, Ithaca, and Weedsport, for water shipment; Auburn, for New York Central R. R.; Sterling, for Lake Ontario Shore R. R., and Fair Haven, will be 90 cts., per gross ton, between Coxton and Waverly. On all coal transhipped at Waverly into broad guage cars, an additional charge of 10 cts. per ton will be made to cover the expense thereof. The full rate from Coxton to Buffalo is $2.46; to Rochester, $2.22.

ROBERT H. SAYRE, President.

Geneva, Ithaca and Sayre Railroad.—The rates of transportation on coal from Coxton, Pa., per ton of 2,240 lb., from and after August 6, will be asfollows:

To East Waverly, N. Y.	$1 75
" Ithaca for C. Lake RR. (local)	1 64
" " for C. L. RR. and for shipment via Erie Canal	1 25
" Van Etten, for U. I. and E. RR.	1 61
" Geneva (local)	1 62
" Geneva for S. P. and S. and L. O. S. Railroads, and for N. Y. C. and H. R. RR., except Auburn and Cayuga	1 62
To Geneva for Buffalo and Tonawanda	1 49
" " " Genesee Docks	1 44
" " " Rochester and Charlotte	1 58
" " " Auburn and Cayuga	2 50
Total rate to Buffalo	2 46
" " " Rochester	2 22

REGULATIONS.

A charge of fifteen cents per ton will be collected of each consignee on all coal not unloaded within twenty-four hours after its arrival, and an additional charge of ten cents per ton for every twenty-four hours thereafter; Sundays and legal holidays excepted.

No allowance will be made for coal lost from cars on account of broken doors or other defects existing when the cars are loaded.

Seventeen cents per ton will be charged, at Ithaca Docks, for shipping coal direct from cars to vessels, and 12 cents per ton additional from stock, making a total charge on what is shipped from stock of 29 cents per ton.

All freights will be collected weekly, by drafts on shippers, from Coxton to destination.

Lake Freights on Coal.

From Buffalo to	Chicago	$0.30@0.55
" "	Milwaukee	0.40@0.55
" "	Michegan City	0.60
" "	Toledo, O	0'20
" "	Sandusky	0'20
" "	Detroit	0'20
From Cleveland to	Chicago	0'40@0.50
" "	Milwaukee	0.50@0.55
" "	Detroit	0.30
" "	Toronto and Hamilton, gold	1.00
" "	Marquette	0 30
" "	Duluth	0.50@0.65

For freights on anthracite coal from *Newburg and Rondout* we refer to our issue of July 21.

For rates of transportation on coal via the *Erie Canal* we refer to our issue of July 21.

Freights on Bituminous Coals from the Mines to Tide Water Shipping Ports.

From the Mines to Piedmont, Cumberland or State Line, 4c. per ton of 2,240 lb. per mile on distances less than 4 miles, and 3 cents per ton per mile on distances over 4 miles, and 2 cents per ton per mile on distances over 100 miles.

From Piedmont to Baltimore (206 miles), $1.85 per ton of 2,240lb., or $1.65 per net ton.

From Cumberland to Baltimore (178 miles), $1 54 per ton of 2 240 lb., or $1.37 per net ton (½ cent. per ton per mile for use of hoppers over C. & P. RR.).

From Cumberland to Georgetown (152 miles) by canal, 70c.@90c. Tolls 40c.

From Osceola to Greenwich, Phila. (eay 248 miles, per T. & C. RR. per ton bituminous coal of 2,000 lb, less drawback, $1.90@$2.15.

From Osceola to South Amboy, N.J. (317 miles), per 2,000 lb., $4.02, less drawback, $1.28; net rate per ton of 2,000 lb., $2.75; net rate per ton of 2,240 lb., $3.08; transhipment charges 20 cents additional.

Freights

Representing the latest actual charters up to August 18.
Per ton of 2240 lb.

PORTS.	From Philadelphia.	From Baltimore.	From Georgetown.	From Elizabethport, Port Johnson, South Amboy, Hoboken and Weehawken.
Augusta, Me.	....	....	....	50
Albany	...	....	....	....
Alexandria, Va	....	50	....	....
Annapolis, Md	....	....	....	....
Bangor, Me	1 15	1 50	....	90
Bath, Me	1 00	1 25	....	1 00
Baltimore	55@65	....	....	....
Boston, Mass.	105@130	1 25	....	90
Bridgeport, Ct.	...	1 20	....	50
Bristol, R. I.	....	..	....	80
Beverly, Mass.	....	..	....	1 00
Cambridgeport, Mass.	1 40	....	....	90
Charleston, S. C.	90	....	....	....
Danversport, Mass.	1 15	....	....	....
East Greenwich, R. I.	....	....	....	....
Fredericksburg, Va.	....	....	....	....
Fall River	1 10	1 13	....	80
Gloucester	120@125	.. .	....	....
Hingham, Mass.	...	....	....	....
Hartford, Conn.	....	....	....	....
Hoboken	...	....	....	35
Hudson	....	...	....	...
Jersey City	...	....	....	35
Lynn, Mass.	1 30	.. .	....	....
Medford, Mass.	1 50	.. .	....	....
Middletown	....	....	....	....
Marblehead, Mass	1 10	....	....	....
Nantucket, Mass.	....	....	....	80
New Bedford	1 10	1 20	....	80
Newburyport	...	1 35	....	1 00
New Haven	....	1 13	....	50
New London	....	1 13	....	....
Newport	1 15	....	....	80
New York	90	1 10	....	35
Norfolk	57½	....	....	75
Norwalk	....	....	....	50
Norwich	105@115	....	....	....
Pawtucket	120@125	....	....	90
Philadelphia	....	....	....	....
Portland	95@120†	1 25	....	90
Portsmouth, N. H.	1 17	1 35	....	. ..
Providence	105@110	1 13	....	....
Poughkeepsie, N. Y.	...	....	...	...
Quincy Point, Mass.	1 20	....	....	....
Richmond, Va	....	....	....	....
Saco	1 30	1 25	....	90
Salem, Mass.	1 20	....	....	....
Savannah, Ga.	1 17½	....	.. .	....
St. John, N.B.	1 15	....	....	....
Somerset, Mass.	1 05	....	....	....
Troy	....	....	....	....
Trenton, N.J.	....	....	....	....
Washington	65	....	....	.. .
Wilmington, N.C.	....	..	....	. ..
Wareham	....	1 25	....	...

* And discharging and towing. † And discharging. ‡ And towing. § 3c per bridge extra.

Rates of Toll

For the above we refer to our issue of July 21.

Towing.

For rates of towing we refer to our issue of Aug. 4.

For freights on *Lehigh and Wyoming Coal* we refer to our issue of Aug. 11.

For freights on *Anthracite Coal to Tide Water Ports* we refer to our issue of Aug. 28.

IRON MARKET REVIEW.

New York.

FRIDAY EVENING, Aug. 17, 1877.

American Pig.—Sales of iron amounting to several thousand tons have been made at an advance on present prices. Particulars will be given in our next. The market for immediate delivery shows no change, with but very little business. The strike in the Hazleton region has a tendency to make the furnace companies more cautious in their sales. About half of the miners in this district are on a strike, but the belief prevails that all the men are more likely to be at work in a few days than that those now at work will stop. We continue to quote No. 1 foundry at $18@19; No. 2 foundry, $17@18; and forge, $16@17.

Scotch Pig.—Under a limitation of production in Scotland, prices there show an advance, although the effect has not been felt in this market. The business here continues very light. We quote Coltness at $26.50, Eglinton $24.50, and Glengarnock $25.50.

Rails.—We only note a sale of 200 tons of steel rails, on private terms. We quote steel rails at mills at $42@45, and iron rails at $33@36.

Old Rails.—In the absence of business, we quote nominally at $19.

Scrap.—A sale of 500 tons of wrought scrap on private terms is reported. We quote at $23@24.

Baltimore, Md. Aug. 13, 1877.

Specially reported by Messrs. R. C. HOFFMAN & Co.

The iron market continues dull, and but little doing in pig iron. The light demand supplied at about quotations.

Baltimore Charcoal	$29@31	Mottled and White	$15@16 00
Virginia Charcoal	28@31	Charcoal C. B. Blooms	55@60 00
Anthracite No. 1	19@20	" " Billetts.	60@62 00
" " 2	18@19	Refined Blooms	40@50 00
Anthracite No. 3	17@18		

Boston. Aug. 11, 1877.

Pig continues to lack strength, and prices decidedly favor the buyer. All the large companies are now willing sellers, the alarm over the coal strikes having subsided.

We quote $22@$23 for No. 1, $21@$21.50 for No. 2, and $20.50@$21.50 for gray forge. Scotch pig is dull at $24@$30 for store lots. The foreign markets are cabled quiet and unchanged.

Bar is dull, quoting $46@$47 for refined, and $37@$38 for common. Nails are in light demand at unchanged prices. Sheet is selling at 3c.@3¾c. per pound. Russia is quiet at 12c. currency. We quote English spring steel 7@8c. gold; 9@11c. for German; 9@11c. for machinery; 14@15c. for cast; 10@12c. for blister; 8c. for American spring; 13½@14c. for cast; 9c. for blister; and 8c. for machinery.—*Commercial Bulletin.*

Chattanooga, Tenn., Aug. 14, 1877.

Specially reported by J. F. JAMES, dealer in pig iron, ores, etc.

The market here remains dull and unchanged.

Tenn., Ala. and Ga. Charcoal, No. 1 Foundry	$18 00@19 00		
Tenn., Ala. and Ga. Charcoal, No. 2 Foundry	17 00@18 00		
Tenn , Ala and Ga. Charcoal, Gray Forge	15 00@16 00		
Tenn., Ala. and Ga. Coke, No. 1 Foundry	19 00@20 00		
Tenn., Ala. and Ga. Coke, No. 2 Foundry	17 00@18 00		
Tenn., Ala. and Ga. Coke, Gray Forge	16 00		
Charcoal or Coke, white and mottled	14 00@15 00		
Tenn., Ala. and Ga. Cold Blast (car wheel)	22 00@28 00		
Old rails	18 00@19 00	Wrought scrap,	
Old car wheels	16 00@17 00	No. 2	12 00
Wrought scrap,		Cast scrap	10 00
No. 1	17 00	Muck bar	32 00@33 00

Iron Ores.

Red Hematite (about 55 per cent. metallic iron) f. o. c. at mines	1 25
Brown Hematite (about 55 per cent. metallic iron)	1 75

Cincinnati, O. Aug. 14. 1877.

Specially reported by Messrs. TRABER & AUBERY, commission merchants for the sale of pig iron, blooms, ore, etc.

Below we hand the closing quotations of our pig iron market.

CHARCOAL.

Hanging Rock A1 Extra	$25 00@25 50	—4 mos
" No. 1 Foundry	24 00@	—4 mos
" No. 2 "	23 00@23 50	—4 mos
" Soft Silver Gray	22 00@22 50	—4 mos
" Mill	20 00@21 00	—4 mos
Tennessee, No. 1 Foundry	22 50@23 00	—4 mos
" " 2 "	21 50@22 00	—4 mos
" Mill,	20 00@	—4 mos

STONE COAL.

Ohio, No. 1 Foundry	21 00@	—4 mos
" " 2 "	20 00@20 50	—4 mos
" Silvery	19 00@	—4 mos
" Mill	19 00@20 00	—4 mos

COKE.

Ohio & W. Va. No. 1 Foundry	23 00@24 00	—4 mos
" " " 2 "	22 00@22 50	—4 mos
" " Mill	19 00@20 00	—4 mos

CAR-WHEEL.

Hanging Rock, C. B.	Car Wheel	35 00@40 00	—4 mos
Tennessee,	"	30 00@	—4 mos
Missouri,	"	30 00@33 00	—4 mos
Alabama,	"	33 00@	—4 mos

BLOOMS.

Charcoal	50 00@ ....—cash.

SCRAP IRON.

Cast	50c.@ 65c.— "
Wrought	75c.@1 00 — "

Cleveland, O. Aug. 10, 1877.

Specially reported by Messrs. C. E. BINGHAM & Co.

Per gross ton, on four months' time. Subject to change in market. Discount for cash 4 per cent.

FOUNDRY IRON.

No. 1, L. S. Charcoal	$25 00	Am. S., No. 1, Ch Val.	$24 00
No. 2, " " "	25 00	" " B. 1, " "	22 00
No. 1, Anthracite	23 00	" " No. 2, " "	20 00
No. 2, "	21 00	No. 1, Massillon	24 00
No. 1, Bituminous	21 00	B—1, "	22 00
No. 2, "	22 00	No. 2, "	20 00

CAR WHEEL AND MALLEABLE IRON.

No. 3 L. S. Charcoal	26 00	No. 5 & 6, L. S. Charcoal	$27 00
No. 4, " " "	26 00		

BESSEMER IRON.

Nos. 1 & 2, L. S. Char.	$26 00

FORGE IRON.

No. 1, Gray	$19 00	White and Mottled	$18 00

Louisville, Ky. Aug. 14, 1877.

Specially reported by Messrs. GEORGE H. HULL & Co.

Prices unchanged, but an increasing demand for all grades. The outlook for a good fall trade is promising. The usual time, four months, is allowed on the quotations below.

FOUNDRY IRONS.

No. 1 Hanging Rock, Charcoal	$23 00@24 00
No. 2 " " "	20 00@21 00
No. 1 Southern Charcoal	20 00@21 00
No. 2 " "	19 00@20 00
No. 1 Hanging Rock, Stonecoal and Coke	20 00@22 00
No. 2 " " " " "	19 00@20 00
No. 1 Southern Stonecoal and Coke	19 00@20 00
No. 2 " " " "	18 00@19 00
"American Scotch"	20 00@22 00
Silver Gray	18 00@19 00

MILL IRONS.

No. 1 Charcoal, Cold-short and Neutral	18 50@19 50
No. 1 Stonecoal and Coke, Cold-short and Neutral	18 00@18 50
No. 2 " " " " "	17 50@18 00
No. 1 Missouri and Indiana Red-short	21 00@22 00
White and Mottled, Cold-short and Neutral	15 00@16 00

CAR-WHEEL AND MALLEABLE IRON.

Hanging Rock, and Cold Blast	34 00@38 00
Alabama and Georgia "	25 00@33 00
Kentucky Cold-blast	25 00@33 00

Montreal. Aug. 7, 1877.

Since last report no improvement in trade can be noticed, the demand is small and merchants are buying very carefully, but towards the end of this month the fall business will most likely have begun, when a slight improvement may be looked for, but until then not much is expected to be done. We quote: Pig iron—Eglinton and Clyde, $17.30 to $18; American, $20 to $21; Summerlee, $18.25 to $18.75; Gartsherrie, $19 to $19.50; Hematite, $23 to $24. Bars per 100 lb.—Scotch and Staffordshire, $1.90 to $1.95; best do., $2.15 to $2.20; Swedes and Norway, $4.50 to $5; Lowmoor and Bowling $6 to $6.50.—*Monetary Times*

Pittsburgh, Pa. Aug. 14, 1877.

Specially reported by A. H. CHILDS

During the past few weeks there has probably been less pig iron consumed in this city than in any similar time for many years. Most of the mills are still idle, and will doubtless remain so until September. Fortunately receipts have been light, so the stock on hand is not unusually heavy. Quotations are unchanged.

	4 mos.		4 mos.
No. 1 F'dry	$22 00@24 00	Mottled & White	$16 50@18 00
" 2 "	21 00@22 00	Hot blast C'coal	22 00@28 00
Gray Forge	18 50@21 00	Cold " Western	—@—

Richmond, Va. Aug. 14, 1877.

Specially reported by ASA SNYDER, Esq.

No improvement in the iron market. Quotations unchanged.

Virginia Cold Blast Charcoal Pig Iron, cold short		$21 to $25
" " " " " "	neutral	30 to 32
" Warm " " " "		24 to 28
" Anthracite 1 X		20 to 21
" " 2 X		19 to 20
" " 2		18 to 19
" " Coke West Va. 1 X		22 to 23
" " " " 2 X		21 to 22

METALS.

NEW YORK, FRIDAY EVENING, Aug. 17, 1877.

Values have not improved, although considerable business has been done in several of the articles on this list.

Gold Coin.—During the week under review, the price of gold has ranged from 105¼ to 105⅜, and closed at 105⅜.

Bullion.—The price of silver in London opened at 54⅛d, declining to 54d on Tuesday, and although the sale of India bills showed a decline, yet prices have since advanced, closing to-day at 54⅛@54¼d. The price in this city is 117¼.

Daily Range of Silver in London and New York per oz.

Date.	London. Pence	New York. Cents	Date.	London. Pence	New York. Cents
Aug. 11	54⅛	117⅜	Aug. 15	54	117⅛
" 13	54⅛	117⅛	" 16	54⅛	117⅛
" 14	54	117	" 17	54¼	117¼

According to the returns made to the Assessor of Storey County, Nevada, the six prod ctive mines on the Comstock Lode produced the following quantities of ore during the quarter ending July July 30, 1877:

	Tons.	Average.	Bullion.
Belcher	5,837	$23	$134,753
California	49,967	92	4,627,456
Con. Virginia	39,778	95	3,775,362
Chollar-Potosi	9,104	15	145,489
Justice	40,776	13	743,063
Ophir	2,660	29	78,474
Totals	148,122	$64	$9,504,597

During the corresponding quarter last year the California mine produced 31,100 tons of ore, yielding $4,519,700, an average of nearly $146 to the ton, and the Consolidated Virginia mine produced 33,500 tons, yielding $3,963,300, an average of $118 per ton. For the same quarter the Ophir mine produced 18,250 tons, yielding $669,200.

The Virginia City *Enterprise*, of the 8th inst., says: "Last evening the Bonanza mines made the largest shipment of bullion ever made from the Comstock. These 'biggest shipments' are getting to mean something these days. There was a time when the Belcher, at three hundred and thirty odd thousand dollars, made it, and it was thought wonderful, as indeed it was. Then, little by little, these 'biggest shipments' grew bigger yet, till about $670,000 was reached.

"The amount shipped last evening by the bonanza mines was 173 bars, aggregating $711,446.85, and yet there was bullion left in the office which was not taken. Of this amount California turned out 86, valued at $381, 084.67, making a total to date and for the past fiscal month of $1,399,331.79. The Consolidated Virginia shipped last evening 87 bars, valued at $330,362.18, making a total to date of $1,305,023.64. The Consolidated Virginia clean-up is to come. The total for the two mines so far this month is $2,704,375 43. The Consolidated Virginia clean-up will increase this to about $3,000,000.

BULLION SHIPMENTS.

We give below a statement showing the amount of latest bullion shipments for July, in addition to those announced in our issue of the 4th inst:

Mine.	Location.	
Chollar Potosi	Nevada.	$33,595 14
Ophir	"	6,400 00
Raymond & Ely	"	6,433 00
Leopard	"	3,600 00
Grand Prize	"	13,727 00
Martin White	"	35,199 00
K. K. Cons.	"	15,000 00
Tybo Cons.	"	79,230 00
New Coso	Calif'nia.	10,400 00
Modoc	"	45,827 00
McCracken	Arizona.	25,624 00

Copper.—The sales of future copper, which we noted in our last, have in all footed up about 2,500,000 lb., selling from 18⅝c. down to 18¼c., and advancing again to 18½c. In addition to this, 250,000 lb. on spot are reported to have been sold at 18¼@18⅜. The sales of future copper were entirely to manufacturers. The smaller mining companies having disposd of their stock, the large companies are now asking 18c.@19c, on spot, with 18⅜c. bid, and 18⅝c. asked—18½c. would probably result in business. For future delivery 18½c. is bid. Prices in London, according to latest cable advices, were unchanged.

Messrs. Vivian, Younger & Bond, of London, under date of Aug. 3, says of copper: "Chili bars have been in more active demand during the past month. The fluctuation in prices has not exceeded 15s per ton, and the quotation for g. o. b's. is again within a trifle of what it was at the commencement, viz., £68 15s. Upwards of 3,500 tons have sold at from £68 10s to £70 10s, according to brand and prompt. The usual telegraphic advices did not come to hand till the 31st ultimo, owing to an interruption in the communication with Chili. For the first fortnight the charters were equal to 2,300 tons in pure copper, consisting of 800 tons in regulus, and 1,400 tons bars for England, with 100 tons bars for the Continent. On the 24th ulto. the following parcels of Australian were disposed of at public auction: 500 tons Wallaroo Cake at an average of £79 0s 6d; 100 tons Ingot at an average of £79 13s 6d; average of the whole sale £79 2s 8d pert on. 210 tons Burra Cake at an average of £74 16s 6d; 15 tons Ingot at an average of £76 13s 6d.

	1st Aug. 1877.	1st Aug. 1876.	1st Aug. 1875.
Stock	20,493	24,976	22,653
Chili Produce shipping and afloat per Mail advices.	4,400	6,300	7,150
Total..Tons	33,893	31,276	29,803
	1st Aug. 1877.	1st July 1877	1st June 1877.
Stock	29,493	29,062	28,077
Chili Produce shipping and afloat per Mail advices.	4,400	6,000	5,900
Total..Tons	33,893	35,062	33,977
Chili Produce chartered for per Cable advice received up to date..	3,900	2,700	4,100
Australian Produce afloat..	1,100	1,300	1,100

Tin.—There is but very little business doing in pig tin. Straits in London according to cable advices to-day has declined to £65. We quote here, in gold, per lb., as follows: Straits, 15½c.@15¾c.; L. & F., 14¾c.@15c.; Refined, 15¾c., and Banca, 17¾c.

Messrs. Vivian, Younger & Bond, of London, under date of Aug. 3, says of tin: "Foreign has been dull of sale at gradually receding prices. Straits sold at from 68s down to 66s. Australian 67s 6d down to 65s 6d. Supplies continue heavy, and the stocks increase, though the monthly deliveries are latterly better than in the earlier months of the year. Holders, however, get disheartened at the continuous Australian supplies, and it is difficult to see how the position can improve with the present visible supplies, unless the demand receives some stimulus either from a lower price or a better trade. On the 31st ult. at the Dutch Trading Company's sale 23,081 slabs Banca realized from 40 fls. to 42 fls., equal to about £69 10s laid down here.

The stock of Foreign Tin in London and Holland is thus estimated:

	1877. 1st July.	1st Aug.	1876. 1st Aug.	1875. 1st Aug.	
Foreign Tin in London.	8,996	9,506	7,147	5,574	Tons
Banca Tin in Holland...	966	1,482	1,345	896	"
Banca Tin (in Company's hands.....	829	1,413	1,264	2,375	"
Billton Tin in Holland...	1,419	1,606	900	870	"
					"
	12,210	14,207	10,656	9715	"
Quantity of Tin afloat for Eu'pe.	5,100	3,000	1,000	1,800	"
Quotation on the same dates being for Straits.	£69	£66 10/	£73	£78	per Ton.

Tin Plates.—By a through freight contract large quantities of tin plates have been delivered direct from England to Chicago, and at present all, or nearly all the Western business is being done from that city. This tends to make business in this market very quiet. We quote, in gold, per box, as follows: Charcoal tins, $6.55@6.75, and ternes, $6.12½; coke tins, $5.75@5.87½, and ternes, $5.37½@5.62½.

Messrs. Robert Crooks & Co., of Liverpool, under date of Aug. 2, say of tin and terne plates: "Demand has been moderate, except for charcoal ternes, which has been large, and made prices for this grade firm, with an upward tendency. Charcoal tins are a little easier than they were a month since, and reductions of 3d to 6d per box are occasionally obtainable. Cokes: Tins and ternes are unchanged, though the pretentions of some makers are more moderate than they were, and there have been more brands obtainable at 17s 9d to 18s, and 16s 9d to 17s respectively than there were. The future of the market it is difficult to prognosticate; lower prices seem improbable in view of the reduced make, and the continuance of the present American demand."

Lead.—This article shows no new features. We note sales since our last, aggregating about 400 tons at 5c.

Spelter and Zinc.—Spelter is quiet and quoted at 6c.@6¼c., according to quality. Sheet zinc is also dull and quoted at 7¼c.@7½c.

Antimony, with but little business, is quoted at 11⅜c.@11½c., gold.

Quicksilver.—The San Francisco *Commercial Herald* of Aug. 9th says: "Last week we noted an advance in this market to 60@62½c., in London, £9 10s per bottle, and in Hongkong to $95 per picul. Since then we learn that the advance in Hongkong has not been sustained. Our spot stock is very light, and receipts very meagre. The impression prevails on the street at this writing that the outgoing steamer City of Tokio for Hongkong will carry 2,000 flasks. There is little doubt but that the recent advance here of 20c. per lb will again stimulate production and induce those parties who have put out their furnaces or stopped the reduction of rich ores and confined their operations to low grade ores to at once fire up to their full working capacity, smelting their richest cinnabar ores in order to take advantage of current prices. There is no question but that we have many rich mines of cinnabar in this State not yet opened or fully developed, but which only need high prices to stimulate owners to a full development thereof. There is no question but that the consumption of Quicksilver in the arts, not only in China but in the East Indies and elsewhere, has been largely increased and stimulated by extreme low prices ruling the past six months. Closing price, 60c. dull and nominal. The receipts of Quicksilver from August 1st to 7th inclusive were 1,975 flasks. As we go to press the article cannot be quoted better than 57½c."

"The receipts for July were 5,337 flasks as compared with 4,893 flasks for the corresponding week of 1876, while the receipts for the first seven months of this year were 42,292 flasks, as against 32,511 flasks for the like period of last year, showing an increase of 9,781 flasks this year. The exports for July were 3,909 flasks, valued at $129,233, and for July 1876, 2,128 flasks, valued at $76,259. The exports for the first 7 months of this year were 32,302 flasks, valued at $1,084,594, and for the corresponding period of 1876, 20,555 flasks, valued at $888,571.

Salt Lake Ore and Metal Market.

SALT LAKE CITY, UTAH, Aug. 17, 1877.

Argentiferous Lead (Base Bullion).—$55 per ton for lead. $1.18 per ounce for silver. $20 per ounce for gold. The quotations for silver are based upon the silver contents in the lead of 80 to 120 ounces per ton of 2,000 lb.

The *Inter-Ocean* correspondent, under date of the 9th inst., says: "The bullion market is still depressed and entirely inactive. The shipments of ore and bullion for the week ending August 4 were as follows: 16 cars bullion to Omaha, 13 to Pittsburg, 14 to New York, 15 cars lead ore to Pittsburg, 13 to Hilliard, 7 cars copper matte to San Francisco. Bullion, 902,657 pounds; lead ore, 590,620 pounds; copper matte, 149,100 pounds. Total, 1,642,377 pounds."

The Union Pacific Railroad Company has reduced its tariff on bullion $1 per ton to Omaha. The roads east of that have made a reduction of $4 per ton to New York,

FINANCIAL.

New York Stocks.

NEW YORK, Friday Evening, Aug. 17, 1877.

The business in the coal stocks during the first five days of the week under review was very quiet, although prices were held very firm under the buoyancy of the general stock market. To-day, however, quite a business was done at an advance all around, although there are no encouraging features in the affairs of the companies whose stocks are represented on this board. The total sales of coal stocks to-day were over 50,000 shares. Delaware & Hudson Canal Company has ranged from 43⅜ to 47¾, closing at 45½. A committee of stockholders, appointed by this company to report on its condition, has issued a rose-colored report occupying 101 pages. We will call attention to it after a careful examination. Delaware, Lackawanna & Western Railroad has ranged from 41¾ to 49, closing at 47⅞. New Jersey Central Railroad has ranged from 12. to 14½., and closing at 14.

The Gilberton Coal Company, of Boston, has determined to reduce its capital stock from $500,000 to $100,000, and issuing one new share of $100 each for five shares of the old stock.

Harleigh Coal Company, of Boston. We note the statement that this company will make no further dividend, except a final one in liquidation, its "mine having caved in."

Delaware & Hudson Canal.—This company has executed a mortgage of $10,000,000 upon its property in Pennsylvania. According to President Dickson, $5,000,000 will secure debenture bonds due in 1893. $1,500,000 will be used to take up bonds maturing November 1, 1877, and $1,500,000 to pay off the floating debt. It is not the intention to sell any of these bonds for several years, but to use them in hypothecation.

Miscellaneous Sales and Quotations.

Sales and quotations of the stocks and bonds dealt in here at Philadelphia, and Baltimore for the week ending the 17th inst. are given in the following tables. The Philadelphia quotations will have a * affixed. The Baltimore quotations are indicated thus †.

STOCKS.

	Quotations. Highest.	Lowest.	Closing.	Sales Shares.
American Coal Co	—	—	25	—
*Cambria Iron Co	—	—	50	—
*Pennsylvania Salt Manf'g Co.	—	—	58	—
*Westmoreland Coal Co	—	—	55	—
*Buck Mountain Coal Co	—	—	40	—
*Schuylkill Nav. Co	—	—	—	—
St. Louis, I. M. & S. RR. Co.	—	—	8½	—
Spring Mountain Coal Co	—	—	30	—
†Balt. & Ohio RR. Co. pref.	—	—	100	95
" " " common	—	96¼	94	311
†Pittsburg & Connellsville RR.	—	—	—	—
†George's Creek Coal Co	—	—	—	—
†Santa Clara Mining Co	—	—	—	—
†Atlantic Coal Co	—	—	1.15	—

BONDS.

D., L. & W. 7s, Convt., 1892	J. & D.	—	—	100	—
" " 2d mtge., 1881	M. & S.	—	—	106	—
N. J. C., 1st mtge., new	F. & A.	110¾	110½	110¾	$6,000
" " 1st mt., cons. 1899	Q.	68½	68	68¼	52,050
" " Convt	M. & N.	64¾	64½	64¼	21,000
L. & W. B. Coal Co., cons.	Q.	—	—	22¼	—
Am. Dock & Imp. 7s	J. & J.	41¼	—	40	10,000
D. & H. C. Co., 1st m., 1884	J. & J.	—	—	95	—
" " " " 1891	J. & J.	97	93⅛	97	5,000
" " " " 1877	J. & J.	100¼	—	100½	22,000
" " " " reg., 1894	A. & O.	—	—	—	—
" " " " coup., 1894	A. & O.	95	—	95	5,000
St. L. I. M. & S., 1st mt. 1892	F. & A.	100½	99¾	99	23,000
Ches. & Ohio, 1st mt., 1899	—	—	—	20	—
*L. V. RR., con. m. 6s, 1923	J. & D.	—	—	—	—
" " 2d m., 7s, 1910	M. & S.	113	—	112	2000
" " reg., 1898	J. & D.	110	—	—	11,000
" " coup., 1898	J. & D.	108½	—	108	5,000
*P. RR., 1st mtge., 1880	J. & J.	—	—	—	—
" Gen. mtge. reg., 1910	A. & O.	—	—	107	—
" Con. m. 6s. cou., 1905	J. & D.	—	—	—	—
" " " reg. 1905	Q.	—	—	90	—
" gen M. Coup., 1910	J. & J.	105¼	105	105	11,000
" New Loan 5s	—	111⅜	111¼	111⅜	56,000
*P. & R. RR., 7s, 1893	A. & O.	—	—	—	—
" " con. m. 7s. cou. 1911	J. & D.	98	—	96	1,000
" " Deb. 6s, 1893	J. & J.	—	—	—	—
" " New convt. 7s. 1893	J. & J.	—	—	—	—
" " Con. mtge. 7s. reg.	J. & D.	90½	—	96	12,000
" " 6s. 1843-80	J. & D.	—	—	103	—
*P. & R. C. & I. Co. Deb. 7s	M. & S.	—	—	—	—
*P. & R. C. & I. Co	—	—	—	—	—
*L. C. & N. Co. 6s, 1884	M. & Q.	102	—	102	200
" " RR. loan 1897	F. & Q.	—	—	101	—
" " Con. mtge. 7s.	J. & D.	—	—	—	—
" " Cvt. gold, 1894	M. & S.	—	—	—	—
" " Gold Loan, 1897	J. & D.	86	83¼	86	2,000
*Schuylkill Nav., 6s. 1897	M. & Q.	—	—	89	—
*Pa. and N. Y. Canal, 7s	J. & D.	—	—	110	—
*Pa. Canal Co	J. & J.	60	—	59	2,000
*Susquehanna Coal Co. 6s	—	—	—	—	—
†Ches. & Ohio 1st m. 6s	M. & N	—	—	—	—
†Balt. & Ohio 6s. 1880	J. & J.	—	—	101½	—
" " 6s. 1885	A. & O.	105¼	104¾	—	3,000

Total transactions for the week.....$250,10

Philadelphia Stocks.

PHILADELPHIA, FRIDAY EVENING, Aug. 17, 1877.

The stock of the Pennsylvania Railroad Company has been moderately active during the past week, the sales amounting to 76,072 shares, the fluctuations have been slight, the extreme limits recording 25⅝@27⅛, closing to-day at 26¾, an advance of ⅜ or 1¼ per cent. from the final price a week ago. Lehigh Valley Railroad stock has been very sparingly dealt in, 618 shares representing the transactions, the final price of 33¼, from which figure the stock has not varied but ¾ during the business of the week, shows an advance equivalent to 1 per cent. from our last. The stock of the Lehigh Coal and Navigation Company has ranged from 17½ to 18¾, and closes at 18, with sales of 758 shares. Reading Railroad stock has been exceptionally steady, and closes firm at $12 per share, the same price as recorded a week ago, the sales amount to 2,334 shares.

Under date of the 16th inst., this company announces that on and after August 22, 1877, one year's dividend on the preferred and common stocks of the Schuylkill Navigation Company will be paid at its

COAL TRANSPORTATION AND GENERAL MINING STOCKS.

Name and Location of Company.		Feet on Vein.	Capital Stock	Shares No.	Shares Par Val.	Assessments. Total levied to date.	Assessments. Date and amount per share of last.			Dividends. Total paid to date.	Dividends. Last Dividend.				Highest and Lowest Quo. per Share in Currency. Aug. 11. H.	Aug. 11. L.	Aug. 13. H.	Aug. 13. L.	Aug. 14. H.	Aug. 14. L.	Aug. 15. H.	Aug. 15. L.	Aug. 16. H.	Aug. 16. L.	Aug. 17. H.	Aug. 17. L.	Sales.
Coal Stocks.			$			$	Mo.	Yr.	Amt.	$	Mo.	Yr.	Amt.	Fr.ct													
Consol. Coal	Md.	....	10,250,000	102,500	$100	*	.....	.....	.....	...	Jan..	1877	2½	10	..	..	..	..	..	..	..	..	..	..	..	..	..
Del. & H. Canal	Pa.	....	20,000,000	200,000	100	*	.....	.....	.....	38,522,920	Aug.	1876	4	8	45⅜	42½	46⅜	45	45½	44⅛	45⅜	44	46	45	47⅜	45½	17,962
Del., Lac. & W.RR.	Pa.	....	26,200,000	524,000	50	*	.....	.....	.....	....	July	1876	2½	5	43¾	41⅞	44⅛	42⅞	43¾	42½	43⅞	42⅜	45	43¾	49	45½	68,404
Lehigh C. & N.	Pa.	....	10,448,550	208,971	50	*	.....	.....	.....	.. .	Sep.	1876	1⅜	6	..	..	17⅜	17½	..	..	..	..	18	18	18¼	18	758
Lehigh Valley RR.	Pa.	....	27,042,900	540,858	50	*	.....	.....	.....	....	Apr.	1877	1⅜	6	33¼	33¼	53	32⅜	33	33	33	33	33½	33⅜	33½	33¼	618
Maryland Coal	Md.	....	4,600,000	44,000	100	*	.....	.....	.....	...	Jan..	1876	1½	..	..	..	..	..	..	..	9	9	..	..	..	..	20c
N. J. Central RR.	Pa.	....	20,600,000	206,000	100	*	.....	.....	.....	....	Apr.	1876	2½	10	12¼	12⅛	12¾	11⅝	12¼	12	12⅛	12	12½	12¼	14⅞	13⅜	4,674
Penna. Coal	Pa.	....	5,000,000	100,000	50	*	.....	.....	.....	....	Aug.	1877	3	12	..	..	..	..	..	..	..	..	..	..	..	..	..
Pennsylvania RR.	Pa.	....	68,868,700	1,377,376	50	*	.....	.....	.....	....	May.	1877	1½	6	26⅛	25⅝	25⅝	25⅜	26¼	25⅜	26¾	26¼	27⅛	26¾	26⅞	26¾	76,072
Phil. & Read. RR.	Pa.	....	34,278,755	685,575	50	*	.....	.....	.....	....	Jan..	1876	2½	10	12	12	12	11⅞	12	12	12	12	12	12	12¼	12	2,334
General Mining Stocks																											
Alpha Cons. G. S.	Nev.	300	3,000,000	30,000	100	180,000	Aug.	1875	$1 00	....	.....	.....	.....	..	..	..	11	..	..	..	..	..	..	..	..	..	100
Am. Flag, G.	Colo.	5,300	600,000	60,000	10	*	....	....	....	....	.....	.....	.....	..	11c	..	11c	10c	12c	11c	11c	..	11c	..	12c	..	9,400
Belcher. G. S.	Nev.	1,040	10,400,000	104,000	100	908,400	July	1877	1 00	15,397,200	Apr.	1876	$1 00	12	..	..	..	..	..	..	..	..	..	..	..	..	....
Bertha & Edith G.	Vir.	645 acs.	3,500,000	350,000	10	*	....	....	....	....	.....	.....	.....	..	1⅛	..	1.30	1¼	1.30	1¼	1¼	..	1.30	1¼	1.30	1¼	14,300
Best and Belcher, G. S.	Nev.	545	10,080,000	100,800	100	337,792	Aug.	1877	1 00	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Bobtail, G.	Colo.	2,500	1,136,630	227,326	5	*	....	....	....	....	.....	.....	.....	..	1.60	..	1½	..	..	..	1.60	1.45	1.60	1.55	..	..	2,300
Bobtail Tunnel, G.	Colo.	....	100,000	20,000	5	6,000	July	1873	0 30	20,000	Dec..	1876	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Bullion. G. S.	Nev.	943½	10,000,000	100,000	100	2,552,000	June	1877	1 50	....	.....	.....	.....	..	8½	8	8	..	..	..	..	..	..	..	..	..	400
Caledonia, G. S.	Nev.	2,188	10,000,000	100,000	100	1,360,000	June	1877	50	....	.....	.....	.....	..	4¼	4	..	..	..	..	..	..	..	..	..	..	900
California, G. S.	Nev.	600	54,000,000	540,000	100	....	....	....	....	16,200,000	July	1877	2 00	24	..	..	..	..	..	..	..	..	..	..	..	..	....
Chollar Potosi, G. S.	Nev.	1,400	2,800,000	28,000	100	1,412,000	July.	1877	3 00	3,080,000	Feb..	1872	1 00	12	..	..	..	..	..	..	..	..	..	..	..	..	....
Cleveland, G.	Colo.	3,715	250,000	25,000	10	*	....	....	....	....	.....	.....	.....	..	6	..	6	..	6	..	6	..	6⅛	6	6	..	2,150
Cons. Hercules & Roe.	Colo.	16,500	1,000,000	100,000	10	*	....	....	....	120,000	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Cons. Imperial. G. S.	Nev.	468	50,000,000	500,000	100	475,000	May.	1877	0 20	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Con. N. Slope & E.C.T.	Colo.	15,000	500,000	10,000	50	*	....	....	....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Cons. Virginia, G. S.	Nev.	710	54,000,000	540,000	100	474,600	June	1873	3 00	30,240,000	July	1877	2 00	24	..	..	..	..	..	..	..	..	..	..	..	..	....
Confidence, G. S.	Nev.	130	2,496,000	24,960	100	243,840	Mar.	1873	1 00	78,000	May.	1865	8 ⅓	..	..	..	..	..	5	..	..	..	..	..	..	..	100
Crown Point, G. S.	Nev.	600	10,000,000	100,000	100	1,473,370	June	1877	1 00	11,588,000	Jan..	1875	2 00	24	..	..	..	..	..	..	..	..	..	..	..	..	....
Douglas	Colo.	21,000	1,000,000	10,000	100	*	....	....	....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Eureka Cons. G. S. L.	Nev.	..	5,000,000	50,000	100	100,000	May	1876	1 00	1,000,000	Aug.	1875	1 00	..	..	..	38½	..	37¼	..	37¼	37	..	..	..	..	400
Eureka G. Mg. G.	Calf	..	2,000,000	20,000	100	*	....	....	....	2,094,000	May.	1877	2 00	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Exchequer. G. S.	Nev.	400	10,000,000	100,000	100	280,000	Sept.	1876	1 00	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Gould and Curry, G. S.	Nev.	621	10,800,000	108,000	100	2,242,000	Apr.	1877	1 00	3,934,800	Oct..	1870	10 00	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Granville Gold	N. C.	9,000	1,000,000	100,000	10	*	....	....	....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Hale & Norcross, G. S.	Nev.	400	11,200,000	112,000	100	2,466,000	July	1877	0 50	1,598,000	Apr.	1871	1 00	12	..	..	..	..	..	..	..	..	..	..	..	..	..
Henry Tunnel	Nev.	3,000	2,000,000	80,000	25	*	....	....	....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Hukill, G. S.	Colo.	3,288	1,000,000	100,000	10	*	....	....	....	70,000	Aug.	1877	0 10	12	..	..	..	..	..	..	..	..	2½	..	..	..	200
Indian Queen, S.	Nev.	1,000	3,000,000	60,000	50	....	....	....	....	60,000	Dec..	1875	0 50	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Julia Cons., G. S.	Nev.	3,000	11,000,000	110,000	100	330,000	Apr.	1877	1 00	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Justice, G. S.	Nev.	2,100	10,500,000	105,000	100	1,660,000	June	1877	1 50	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Kentuck, G. S.	Nev.	95	3,000,000	30,000	100	270,000	Dec..	1874	1 00	1,252,000	Mar.	1870	5 00	..	4¼	4	4	..	4	..	4	..	4	..	4¾	4	900
Kossuth, G. S.	Nev.	2,700	5,400,000	108,000	50	405,000	Aug.	1876	0 50	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Lacrosse	Colo.	3,900	1,000,000	100,000	10	*	....	....	....	....	.....	.....	.....	..	37c	36c	37c	36c	38c	36c	39c	38c	38c	37c	38c	35c	11,000
Leopard, L. G. S.	Nev.	1,500	5,000,000	50,000	100	100,000	July.	1877	50	162,500	Dec..	1876	0 50	..	2	..	2¼	2	2	1⅞	2	1⅞	2	..	2	1⅞	2,100
Lucerne Mining	Colo.	4,200	5,000,000	500,000	10	*	....	....	....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Mariposa, preferred	Cal.	44-387	5,000,000	50,000	100	1,425,000	June	1877	1 00	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
" common	"	acres.	10,000,000	100,000	100	1,425,000	June	1877	1 00	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Memphis	Colo.	6,000	500,000	60,000	8⅓	*	....	....	....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Merrimac, S.	Mass.	1,500	500,000	50,000	10	*	....	....	....	65,000	June	1877	40c	12	..	..	..	..	..	..	..	..	..	..	..	..	....
Mexican, G. S.	Nev.	600	10,080,000	100,800	100	151,200	June	1877	0 40	....	.....	.....	.....	..	11	..	11	..	9⅛	9	..	..	10	..	..	..	800
Moose	Colo.	39,000	2,000,000	200,000	10	....	....	....	....	....	.....	.....	.....	..	4½	4¼	4⅝	4⅜	5	4½	5⅛	4¾	5¼	4⅞	5	4⅝	16,185
N. Y. & Colo., G.	Colo.	....	1,000,000	50,000	20	*	....	....	....	20,000	Mar.	1877	0 20	..	..	..	..	..	..	..	..	..	..	..	2	1⅝	300
Northern Belle, S.	Nev.	1,600	5,000,000	50,000	100	....	....	....	....	1,300,000	July	1877	1 00	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Ontario.	Utah	3,000	10,000,000	100,000	100	....	....	....	....	350,000	July	1877	50	6	21¼	..	21¾	..	21⅜	..	21⅜	..	21½	..	21¾	..	1,340
Ophir, G. S.	Nev.	675	10,080,000	100,800	100	2,934,400	May.	1875	2 00	1,394,400	Mar.	1874	4 00	..	18½	..	..	..	17	..	16¼	..	..	..	17	..	800
Original Comstock, G. S.	Nev.	....	10,000,000	10,000	100	....	....	....	....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Overman, G. S.	Nev.	1,200	3,840,000	38,400	100	2,452,680	June	1877	3 00	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Pleasant View, G.	Colo	1,200	200,000	20,000	10	*	....	....	....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Quicksil. preferred	Cal.	8,500	4,291,300			*	....	....	....	....	.....	.....	.....	..	23¼	27½	..	..	27	..	..	..	28½	28	31	30	1,750
" common	"	acres.	5,708,700	100,000	100	....	....	....	....	....	.....	.....	.....	..	17¼	..	17	..	..	..	..	..	17½	16⅞	18½	18	2,700
Raymond and Ely, G. S.	Nev.	5,000	3,000,000	30,000	100	540,000	Dec.	1876	1 00	3,075,000	Sept.	1873	3 00	..	..	..	..	..	..	..	..	..	..	..	..	..	....
St. Joseph, L.	Mo.	2600 acs.	1,000,000	100,000	10	....	....	....	....	250,000	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Santiago, G. S.	Nev.	2,000	11,200,000	112,000	100	....	....	....	....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Savage, G. S.	Nev.	800	11,200,000	112,000	100	3,194,500	May.	1877	1 00	4,460,000	June	1869	3 00	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Seaton, G. S.	Colo.	1,700	500,000	50,000	10	*	....	....	....	10,000	May.	1877	0 10	12	93c	..	89c	88c	..	..	88c	86c	80c	..	..	..	600
Seg. Belcher. G. S.	Nev.	160	640,000	6,400	100	244,800	Apr.	1876	5 00	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Sierra Nevada G. S.	Nev.	3,650	10,000,000	100,000	100	1,700,000	June	1877	0 50	....	Jan..	1871	1 00	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Silver City, G. S.	Nev.	3,900	6,310,000	63,100	100	15,775	Nev.	1876	0 25	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Silver Hill, G. S.	Nev.	5,400	5,400,000	54,000	100	972,000	July.	1877	1 00	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
South Comstock, G. S.	Nev.	1,500	10,000,000	100,000	100	54,000	Jan	1877	0 25	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
South. California, G. S.	Nev.	1,500	5,000,000	50,000	100	....	....	....	....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Southern Star. G. S.	Nev.	1,500	6,000,000	600,000	100	....	....	....	....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Trenton, G. S.	Nev.	..	10,000,000	100,000	100	....	....	....	....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Union Cons., G. S.	Nev.	850	10,000,000	100,000	100	260,000	Mar.	1876	1 00	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
West Belcher, G. S.	Nev.	1,000	10,000,000	100,000	100	....	....	....	....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Yellow Jacket, G. S.	Nev.	1,200	12,000,000	120,000	100	2,958,000	July	1877	1 00	2,184,000	Aug.	1871	2 50	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Young America, S.	Nev.	1,000	3,000,000	30,000	100	6,000	Oct..	1876	0 20	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Copper Stocks.																											
Allouez, C.	Mich.	..	1,000,000	20,000	50	940,000	May.	1876	5 00	....	.....	.....	.....	..	....		....		....		....		....		....		....
Calumet & Hecla, C.	Mich.	..	2,000,000	80,000	25	1,200,000	....	....	.....	11,450,000	Feb.	1877	5 00	20	....		....		....		....		....		....		....
Central, C.	Mich.	..	500,000	20,000	25	100,000	June	1862	0 65	1,160,000	Feb.	1877	7 00	28	....		....		....		....		....		....		....
Copper Falls, C.	Mich.	..	1,000,000	20,000	50	535,000	May.	1876	....	100,000	Nov.	1871	1 00	..	....		....		....		....		....		....		....
Dana, C.	Mich.	..	500,000	20,000	25	68,000	Jan..	1863	0 50	....	.....	.....	.....	..	....		....		....		....		....		....		....
Dawson, S.	Ont.	..	1,200,000	60,000	20	....	....	....	....	....	.....	.....	.....	..	....		....		....		....		....		....		....
Duncan, S.	Ont.	..	1,200,000	60,000	20	75,000	July.	1876	41⅔	....	.....	.....	.....	..	....		....		....		....		....		....		....
Franklin, C.	Mich.	..	500,000	20,000	25	360,000	June	1876	5 00	585,000	Nov.	1871	1 00	..	....		....		....		....		....		....		....
Humboldt. C.	Mich.	..	500,000	20,000	25	100,000	Sept.	1876	0 15	....	.....	.....	.....	..	....		....		....		....		....		....		....
International, S.	Ont.	..	1,200,000	60,000	20	....	....	....	....	....	.....	.....	.....	..	....		....		....		....		....		....		....
Madison, C.	Mich.	..	500,000	20,000	25	123,000	Sept.	1876	0 10	....	.....	.....	.....	..	....		....		....		....		....		....		....
Mesnard, C.	Mich.	..	500,000	20,000	25	160,000	Apr.	1876	0 50	....	.....	.....	.....	..	....		....		....		....		....		....		....
Minesota, C.	Mich.	..	1,000,000	20,000	50	436,000	June	1869	1 00	1,820,000	Mar.	1876	0 50	..	....		....		....		....		....		....		....
National, C.	Mich.	..	500,000	20,000	25	195,000	Oct..	1875	1 00	360,000	Oct..	1873	1 00	..	....		....		....		....		....		....		....
Osceola, C.	Mich.	..	1,000,000	40,000	25	880,000	May.	1876	2 00	....	.....	.....	.....	..	....		....		....		....		....		....		....
Petherick, C.	Mich.	..	500,000	20,000	25	165,533	Mar.	1876	0 50	....	.....	.....	.....	..	....		....		....		....		....		....		....
Pewabic, C.	Mich.	..	500,000	20,000	25	185,000	June	1868	3 00	460,000	July	1873	1 00	..	....		....		....		....		....		....		....
Phœnix, C.	Mich.	..	1,000,000	20,000	50	817,500	Sept.	1870	3 00	20,000	Jan.	1876	1 00	..	....		....		....		....		....		....		....
Quincy, C.	Mich.	..	200,000	20,000	10	....	....	....	....	2,130,000	Feb.	1877	4 00	..	....		....		....		....		....		....		....
Ridge, C.	Mich.	..	500,000	20,000	25	200,000	....	....	....	90,000	Feb.	1875	1 00	..	....		....		....		....		....		....		....
Rockland, C.	Mich.	..	500,000	20,000	25	495,000	Jan..	1874	1 00	....	.....	.....	.....	..	....		....		....		....		....		....		....
Star, C.	Mich.	..	500,000	20,000	25	265,000	Mar.	1876	0 50	....	.....	.....	.....	..	....		....		....		....		....		....		....
Superior, C.	Mich.	..	500,000	20,000	25	340,000	Mar.	1874	0 25	....	.....	.....	.....	..	....		....		....		....		....		....		....

G. Gold. S. Silver. L. Lead. C. Copper. * Non-Assessable.

Total Assessments levied to date	$45,409,390	Total Sales of Coal Stocks for the week	171,022 share
Total Mining Dividends disbursed to date	118,177,900	Total Sales of Mining Shares for the week	68,925 "

office to the stockholders, or their legal representatives, as they stood registered August 14, 1877. Said dividend will be $1.40 per share on the preferred stock and 70 cents on the common stock, clear of taxes, and will be paid in scrip of the Philadelphia & Reading Railroad Company dated July 1, 1877, payable five years after date, with coupons for interest at 6 per cent. per annum attached, payable semi-annually, January 1 and July 1; said scrip being convertible into 7 per cent. income mortgage bonds in sums of $1,000 or any multiple thereof.

All fractions of dividends less than ten dollars will be issued in a registered scrip, convertible into the coupon scrip in sums of ten dollars or any multiple thereof, or will be settled in cash at the rate of 60 per cent.

Said payments will settle the dividends on said stocks to July 1, 1878.

The Delaware Division Canal Co. has declared a dividend of 4 per cent., payable on demand.

Pennsylvania Salt Manufacturing Co.—We note a recent auction sale of $3,000 of the 7 per cent. 2d mortgage bonds of this company, at 105½ per cent.

Westmoreland Coal Co.—20 shares of the stock of this company were sold at auction during the week at $70 per share.

Reading Iron Works.—We note the announcement

that the coupons due August 10, of the 1st mortgage bonds of Seyfert, McManus & Co., will be paid on presentation.

Pennsylvania Railroad.—A commencement has been made on the long contemplated straightening of the deep cut through Bergen Hill on the New York division. Only a small force is employed on the work, however, and it is to be prosecuted very slowly, there being no special necessity for hastening it. The stone taken out will be used for replacing the gravel ballast formerly used on this division, and the work will probably go on only as fast as the stone taken out can be profitably used.

Copper Stocks.

Reported by Wilson W. Fay & Co., Bankers and Brokers Room 7, Traveler Building, 31 State Street.

BOSTON, THURSDAY EVENING, Aug. 16, 1877.

The market continues dull and the transactions are light, as a natural consequence: the hot weather and the fact that there is no second session of the brokers' board this month, combined, make things very tame and inactive.

Calumet & Hecla has fallen off during the week, there being sales at 170, 169¾, 169½, 169⅜, 169¼, 169⅛, and 168¼, the stock closing at 168 bid, and 170 asked. Copper falls remain quiet at $3.25@3.50. Quincy has fallen off from $33 to $32, the stock selling at that price, and closing $32 bid, and $32.50 asked. In the other coppers there has been no change and few sales. The fact that there is little doing in ingot copper, having the effect of making this line of stocks quiet.

The silver stocks have been a little more lively, and look a good deal more like business. There has been a noticeable demand for Dawson on the street for the last few days, and all that was offering was very quickly taken, drawing the stock from where it had fallen to almost nothing, up to 08 bid, and 09 asked.

Duncan has been likely, there also being large lots sold at 1½ and 2⅜, and closing 2⅜ bid. and 2½ asked.

International caught the fever and tried hard to be lively, and succeeded to some extent, it selling at 30 and 29, and closing 30 bid, and 35 asked.

We think there is a better outlook as soon as the cool weather sets in, and should not be surprised if some of the small coppers would prove good investments before the end of the year.

Gold and Silver Stocks.

NEW YORK, Friday Evening, Aug. 17, 1877.

The same quietness that has characterized this market for weeks has existed during the period under review. Moose has again been the feature of the week with sales of 16,185 shares at 4¼@5¼. The sales of Ontario amounts to 1,340 shares at 21¼@21½. In Quicksilver preferred there have been sales of 1,750 shares at 27@31, while in common the dealings have been 2,700 shares, 16¾@18¼. More than one-half of the business of the week was confined to shares with market values ranging from 10c. to $1.30.

Policy of the New York Mining Stock Exchange.—From the minutes of the Governing Committee, August 8, 1877: "Whereas, the New York Mining Stock Exchange, organized as a market for 'mining, manufacturing, and insurance stocks,' was especially designed to meet the public requirements in the purchase and sale of the stocks of mining companies located east of the Sierra Nevadas, and which, for the most part, have heretofore had no registered market.

"Resolved, that the policy of this exchange in 'listing' mining stocks, be recorded as follows, viz:

"1. It is the policy of the Exchange to offer its facilities for securities already having recognized market value; and further, for those, that from the character of their ownership, management, distribution of interest, and financial condition, present evidence to the Exchange, that a legitimate demand for the purchase and sale of their stock needs the facilities of the Exchange for an open market.

"2. It is the duty of the Stock Committee, when reporting favorably to the placing of a mining stock on the 'lists' of the Exchange, to assign to the list for 'doily call,' mines in actual operation; and to the 'free list,' (to be called up on offers), mines in course of development with developing capital provided. Mining properties, organized, but without the provision of paid in working capital, may be recorded on the 'free list' as mining properties.

"In all cases of mining companies not previously marketed, the committee will investigate the character of the ownership and directory of the company, and receive certified statement of titles and financial condition; (on file, open to members); they shall investigate the good faith of the management, in the provision for, and prosecution of the business of operating their mines and works.

"3. By the admission of stocks to the 'call list' of the Exchange, there is no implied warrantee or commitment as an association, to the value or profitableness, present or prospective, of any corporation whose stock is 'listed.'

"The par value of the capitalization of mines has very generally been an arbitrary matter, and whether based upon cost, revenue, or anticipations, must be a matter of public criticism, and judgment. The 'listing' of a stock gives no official expression regarding its capitalization. The price of its shares in market furnish the only indications of value, and upon such prices, and not on the incorporated share values, are the commissions in the Exchange established.

"All stocks newly 'listed' must fulfill the requirements of the Exchange through its committee, and although the association disclaims any official commitment as to the valuation of properties, still its investigation of corporate status will furnish one safeguard against fraud; and the fact that the membership of the Exchange includes the most experienced men in our community in the mining business, and possessing expert connections. gives facilities of individual inquiry and criticism not heretofore available by investors on the private presentation of mining interests to their notice.

"Attest: J. WYMAN MORRIS, Secretary."

Rates of Commission charged by the New York Mining Stock Exchange.—The following rates have been established:

Stocks selling at	Com. of
$1 per Share and under,	$1 per 100 Shares.
$1 to $2 per share,	$2 " 100 "
$2 to $10 per "	$3 " 100 "
$10 to $25 per "	$ 6.25 " 100 "
$25 to $50 per "	$12.50 " 100 "
Over $50 "	$25 " 100 "

Eureka Consolidated Gold and Silver Mining Co.—The fluctuations of this stock on the San Francisco market have been quite marked, being influenced by the varying phases of its great suit with the Richmond Company, now on trial in the San Francisco courts. The prices within the week ranged from $27 to $35 per share. The quotation dated the 16th inst. shows an advance of $2 per share above the higher figure. A working force of 160 men are employed by the company, of which 100 work in the mine and 60 in the furnaces.

The *Commercial Herald* of the 8th inst., says with regard to the condition of the stock market, in the City of San Francisco "A little better feeling has sprung up in the mining stock market, and a slight but more general advance has taken place. This advance has not produced an increased volume of business, as the aggregate sales in the San Francisco Board are about the same as the previous week. No concerted action is at present apparent in this movement toward improved rates, and we fail to see where the stimulating influence is to come from, especially since no new developments are coming to light. These, to a certain degree, are always necessary—whether real or trumped up—to produce a booming market. The whole amount of bullion of the entire Comstock Lode extracted to the close of June 30, 1877, is given at $235,360,348, of which $141,216,207 is estimated to be silver, and $94,144,139 as gold. With ores sold in early days the total number of tons extracted is given at 6,000,000 in round numbers, and the bullion value of the same $237,000,000. This gives an average of nearly $40 per ton. The lowest average value of ore is $7.89 per ton from the Sierra Nevada mine, and the highest—$96.03 per ton—from the California and Consolidated Virginia mines."

The Hale & Norcross Gold and Silver Mining Company has levied an assessment of 50 cents per share delinquent September 5th.

The Empire Gold Mining Company, of Sierra County, California, has declared a dividend of $1.50 per share, aggregating $15,000 payable on demand.

The Best & Belcher Gold and Silver Mining Company has levied an assessment of $1 per share.

The Baltimore Consolidated Gold and Silver Min-

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ing Company, located on the Comstock Lode, has levied an assessment of 50 cents per share.

The Edith Quicksilver Mining Company, of Napa County, California, has levied an assessment of 50 cents per share, aggregating $25,000, delinquent September 1st.

The Consolidated Amador Gold Mining Company of California, has declared a dividend of 25 cents per share.

Gas Stocks.

NEW YORK, FRIDAY EVENING, August 17, 1877.

The stock of the Brooklyn gas companies, almost without exception, shows an advance, notably that of the old Brooklyn Company, which is quoted at $155@165 per share, bid and asked. The Mutual, of New York, is a little firmer, otherwise there is no change in our list. The market is very quiet, no transactions worthy of note being reported.

A Step Backwards.—The Carbondale (Pa.) authorities have substituted gasoline for gas in lighting the streets, and the people are disgusted.

Substitution of Gas for Gasoline.—The City Council of Jacksonville, Ill., has ordered the removal of gasoline lamps and the substitution of gas therefor.

Camden (N. J.) Lamp-Post Contract.—The contract for furnishing the city of Camden with lamp-posts during the present fiscal year has been awarded by the Lighting Committee at $8.50 per post.

Newtown and Watertown (Mass.) Gas Co.—We note recent auction sales of 25 shares of the stock of this company at from $120 ex-dividend to $122¾ regular.

Dorchester (Mass.) Gas Co.—20 shares of the stock of this company were sold at auction during the week at $99 per share.

Portland, New Brunswick, Gas Supply.—The Gas-Light Committee of Portland announced that arrangements had been made with Mr. Olive, subject to the approval of the Board, to furnish the town with the same number of lights as were in use before the fire for for $24 a light. It was decided to enter into a contract.

The Richmond County Gas Co. of Staten Island has declared a dividend of 2 per cent.

The Greenville (Mich.) Gas Works have recently been improved at an expense of $20,000.

The Aurora (Ohio) Gas Company is making extensive improvements to its plant, and also largely extending its gas mains.

An Enormous Gas Holder.—A contract has been given out for the construction of a gas holder in London to contain 3,100,000 feet. This holder will be built so as to work in a brick tank.

The Clifton (Ohio) Gas Supply.—The Common Council of Clifton have unanimously voted to have gas introduced into the city. The ordinance provides for the emergencies of annexation to Cincinnati, for the purchase of the works by that city, and gives also the Cincinnati Gas Company the exclusive right to lay mains in the streets for ten years.

Newton (Mass.) Gas Supply.—A new gas company has been organized in this place with a capital of $50,000 to manufacture gas by the Wren Process, (Petroleum Method) consumers will be charged $2 per 1,000 feet.

Cheap Gas in Youngstown, Ohio.—The Youngstown (Ohio) Gas Company has reduced the price of gas to $2.25 per 1,000 feet to consumers using less than 3,000 feet per month; over this amount, $2 per 1,000 feet; and for a consumption exceeding 5,000 feet per month, $1.75 per 1,000.

The Progress of Gas Introduction into Brazilian Cities.—Eleven cities in Brazil are now lighted with gas, while in five more cities it is being introduced.

People's Gas Co., of Baltimore.—Quotations of the stock of this company have ranged, during the week, from 13⅛ to 13¼, with sales of 25 shares.

Eau Claire (Wis.) Gas Works.—A company has been organized in this place with a capital stock of $100,000, to construct gas works which are to be completed by the first of November.

The following list of Companies in New York and vicinity are corrected weekly by GEORGE H. PRENTISS, Broker and Dealer in Gas stocks, No. 30 Broad street, N. Y.

Companies in New York and vicinity.	Capital Stock.	Par.	Dividends. Rate per an.	Dividends. Am. of last.	Dividends. Date of last.	Quotat'ns Bid.	Quotat'ns As'd
	$						
Mutual, N. Y.....	5,000,000	$100	10%	2½	July '77	94	96
" Gold Bonds	90,000	1,000	7%	3½	Feb. '77		107
N. York "	4,000,000	....	10%	5	May '77	125	130
Metrop. "	2,500,000	100	10%	5	June '77	133	137
" " Certf.	1,000,000	....	7%	3½	" "	100	103
" " Bonds	500,000	1,000	7%	3½	" "	102	—
Harlem "	1,850,000	50	8%	3½	Aug. '77	95	100
Manhat. "	4,000,000	50	....‡	5	July '77	200	210
Brooklyn, B'klyn.	2,000,000	52	15%	5	July '77	155	165
Nassau, " ...	1,000,000	25	....‡	4	July '77	75	80
" " Certf.	700,000	1,000	7%	3½	July '77	95	100
People's, " ...	1,000,000	10	....‡	3½	July '76	—	40
" " Certf.	300,000	1,000	7%	3½	July '77	80	85
" " B'ds	325,000	....	7%	3	Feb. '77	96	100
Metrop. "	1,000,000	10	5%	2½	May '77	65	70
Wmsb'rg "	1,000,000	50	10%	2½	Apr. '77	115	122½
" " Certf.	1,000,000	....	7%	3½	July '77	100	102
Citizen's "	1,200,000	20	....‡	4	Jan. '77	78	80
" " Certf.	320,000	1,000	7%	3½	Apr. '77	97	100
J. C., N. J.....	750,000	20	10%	5	July '77	160	—
Cent. Westch. N.Y	466,000	50	7%	4	July '77	85	90
Subur'n " "	295,000	50	7%	3½	Apr. '77	90	100
Municipal, N.Y..	1,500,000	100	.....	.....	.....	..	90

‡ Paid irregularly.

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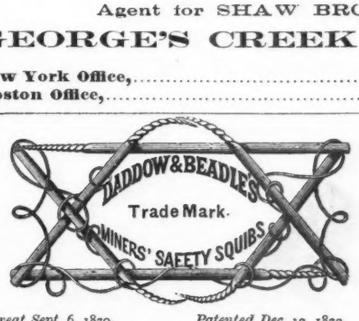

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Patented Oct. 8, 1873.
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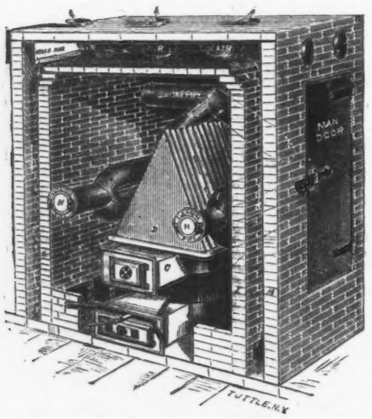

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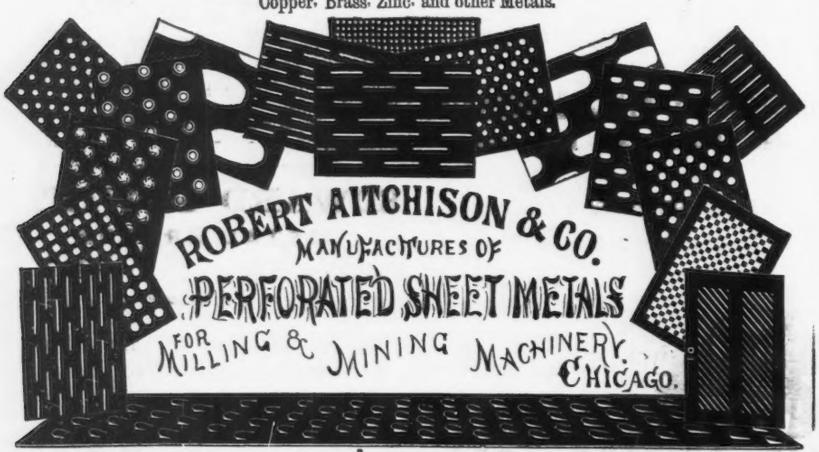

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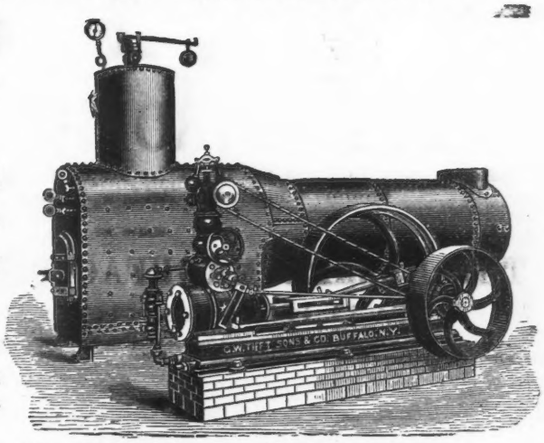

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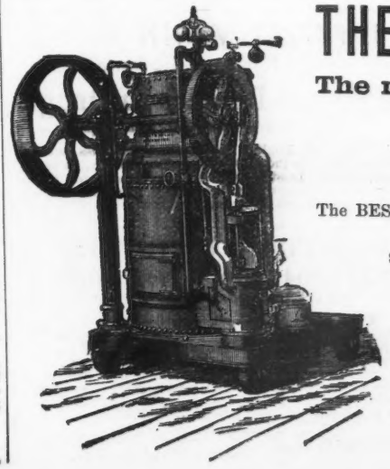

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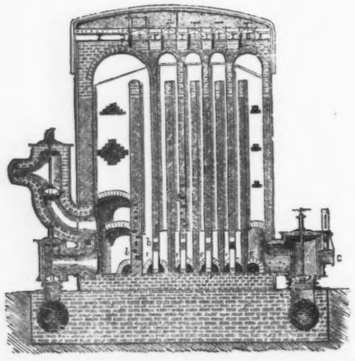

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